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ABSTRACT

This document includes abstracts of 190 completed research projects in agricultural education from September 1, 1989 to August 31, 1990. They report on 102 masters' papers or theses, 40 doctoral dissertations, and 48 staff studies. Thirty-two institutions from 29 states are represented. Abstracts are listed alphabetically by state and within each state by author. Purposes and findings are included in the abstracts. Major subjects are adult education; agricultural education programs (curriculum, supervised agricultural experience programs); agricultural practices and the industry (agricultural mechanics/safety, innovation/adoption/integration, weed control); agriculture teachers (induction, needs/practices, satisfaction, teaching methods); aquaculture; curriculum and instruction in grades K-12; extension (4-H, technology, training); Future Farmers of America; international (agricultural education, extension, research needs/tools, teacher education); postsecondary/university programs (recruitment/enrollment, student teaching); rural schools/youth; secondary agriculture students (curriculum, recruitment/enrollment, student awareness); vocational agriculture programs; and vocational education. Following the abstracts is a section containing citations of research and development activities in progress. They are listed alphabetically by state and then by author and include title, type of project, and institution. ERIC document numbers for previous summaries and author and subject indexes to the abstracts are appended. (YLB)

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Summaries of Research and Development Activities in

Agricultural Education

Completed in the United States of America
1989-90

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SUMMARIES OF RESEARCH AND DEVELOPMENT ACTIVITIES IN AGRICULTURAL EDUCATION

UNITED STATES OF AMERICA
1989-1990

EDITOR - JERRY L. PETERS

Agricultural Education

Purdue University
West Lafayette, IN 47907

Authorized and Administered by
the American Vocational Association
Agricultural Education Division Research Committee

PREFACE

This document is the sixteenth annual **Summaries of Research and Development Activities in Agricultural Education** in the United States. The "Summary of Studies" includes abstracts of completed research projects from September 1, 1989 to August 31, 1990. Since 1987 the manuscripts have been submitted on disk by a majority of contributors. Manuscripts sent as hard copies were electronically scanned, so that the entire publication was produced in a desktop publishing environment. It is our hope that this process has improved the appearance and quality of the publication.

A total of 190 research abstracts were submitted. They report on 102 master's papers or theses, 40 doctoral dissertations, and 48 staff studies. Thirty-two institutions from 29 states contributed to this year's Summaries. The abstracts are both author and subject indexed to assist the reader.

The citations of research and development activities in progress are listed alphabetically by state. These citations show the direction of research in agricultural education and may help researchers identify colleagues with similar interests, avoid duplication of efforts, and promote collaboration among researchers on a regional, national, and global basis.

This publication is authorized by the Research Committee of the Agricultural Education Division, American Vocational Association (AVA). Additional library or personal copies can be purchased for $12 each from the editor. A limited number of copies will be available.

As editor, I would like to recognize and thank those who assisted with the publication especially Deanna Henson for word processing and compiling the manuscripts and Nita Poole for mailing and managing the account. A special thanks is due to the many contributors who helped make this publication possible.

Jerry L. Peters
Editor

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ARIZONA

Ahmed, H. (1989). Extension strategies important and feasible for the improvement of poultry production in Bangladesh. Master of Science thesis, The University of Arizona, Tucson.

The study identified the "most important" and the "most feasible" poultry Extension strategies for the improvement of poultry production in Bangladesh during the next five years. Eighty-two poultry Extension agents of the Bangladesh Department of Livestock assessed the importance of the poultry Extension strategies and 15 Extension administrators assessed the feasibility of the "most important" strategies as identified by the agents. The response rate was 82.4% for the extension agents and 100% for the administrators. Descriptive statistics were used to analyze their response.

The respondents identified 38 "most important" poultry Extension strategies and 12 of these strategies as being also "most feasible" for the improvement of poultry production in Bangladesh. In addition, using the Spearman rank order correlation (r_s), the study found that there was no significant difference between poultry Extension agents who were Veterinary Science graduates and Animal Husbandry graduates in their ranking of the importance of the poultry extension strategies despite the differences in their educational preparation.

Axelrod-Houston, W. (1990). Factors and individuals affecting student enrollment in vocational agriculture programs. Master's Report, The University of Arizona, Tucson.

The purpose of this study was to identify the selected factors and individuals which affected a student's decision to enroll in a vocational agriculture course on the Navajo Reservation. Vocational agriculture students at five different high schools on the Navajo Reservation were surveyed using a modified version of an instrument developed by Larry Christiansen of Glendale Community College of Arizona. The surveys were then tabulated to determine which selected factors and individuals were chosen by the students and to see if there were differences among the students responses when broken down into subgroups of grade level, gender, and geographic location (Eastern/Western Reservation).

Recommendations were then made as to how vocational agriculture instructors could utilize the information in developing/updating student recruitment programs.

Gabel, K. E. (1989). Perceptions of extension functions for rural development. Master of Science thesis, The University of Arizona, Tucson.

The purpose of this study was to ascertain the perceptions of the University of Arizona College of Agriculture graduate students on the importance of Extension functions for rural development. In this study graduate students were grouped into: (1) American and international graduate students; and (2) graduate students with and without previous professional work experience. A questionnaire was mailed to 200 graduate students for the assessment of the importance of 34 Extension functions for rural development. The total response rate was 58%. To analyze the responses, two statistical tests were used: the Student's t-test and the Spearman's rank order correlation (r_s).

It was found that the American and international graduate students perceived a majority of the Extension functions alike, but the international students gave them greater importance. Overall, these students ranked the functions similarly. The graduate students with previous professional work experience gave greater importance to the Extension functions than those without such experience, but their rankings were similar.

Miller, G. M. (1990). Model/unit instruction concept for teaching basic operating principles of agricultural mechanics. Agricultural Experiment Station Project, The University of Arizona, Tucson.

The first introduction of the hydrostatic fluid power teaching model was accomplished in the Spring of 1989 in Agricultural Education 350 - Urban Agromechanization. The functional hydrostatic fluid power teaching model which incorporates four separate systems of operation was completed in 1988. The systems include independent hydrostatic, non-load reacting, full power steering; independent open-center, four-way control valve system of control of front bucket and two remote output couplings for auxiliary attachments; independent hydrostatic power transmission system coupled to a two-speed transaxle for rear-wheel drive; and a dependent closed-loop hydrostatic front-wheel drive system. Hydraulic testing equipment was purchased and utilized in conjunction with the model. Modifications to the equipment were made to facilitate testing and classroom use. Existing texts and software have served as the base for instruction at this point.

Nadasiri, R. M. (1990). Institutional constraints affecting county extension agents in Arizona. Master of Science thesis, The University of Arizona, Tucson.

The purpose of this study was to determine the county extension agents' perceptions of institutional constraints to the performance of their duties within the Arizona Cooperative Extension System. Study population was 66 county extension agents in the state of Arizona. They were surveyed by mailed questionnaire.

Study results indicated, on the average, most of the institutional constraints affect slightly on the county extension agents' work performance. Considerable variation observed among respondents in their perceptions of severity of the constraints. Some of the other important findings include: (1) 4-H agents perceived constraints more severe than Agriculture or Home Economic Agents; (2) county agents perceived more constraints in salary and promotion more severe than county directors; (3) county agents with more than five years of service perceived more of the constraints in the area of Personnel Evaluation more severe than agents with five years or less service.

Perey, D. C. (1989). An assessment of agricultural literacy of students in rural Arizona. Master's Report, The University of Arizona, Tucson.

This research measured the Agricultural Literacy of students in three samples at Mayer Public Schools in Mayer, Arizona -- 5th grade, 8th grade, and 11th grade -- using a modified version of a measurement instrument developed by Jerry Horn and Becky Vining for the Kansas Foundation for Agriculture in the Classroom. The modification was designed to fit the agriculture of Arizona. Tests were designed to measure knowledge of six agricultural concepts. Mean correct scores on tests were used to determine the agricultural literacy of students.

Tests were administered to the participants and comparisons and analysis were made between samples based upon age, on farm/off farm residence, gender, grade in school, and in the 11th grade sample whether or not they had been enrolled in vocational agriculture classes. Recommendations were made with regard to future curriculum design for Agricultural Education at Mayer High School.

Premanath, L. (1990). A comparison of volunteer leaders in 4-H with volunteer leaders in related urban youth group. Master of Science thesis, The University of Arizona, Tucson.

A comparative study was performed to identify personal characteristics and motivation of volunteer leaders from two youth groups, 4-H and Campfire. Criteria under study were appraised using

questionnaires. Data analysis was based on the responses obtained from 64 volunteer leaders. The personal characteristics investigated included expected period of service, support and encouragement, time spent on volunteer leaders' children, place of residence, length of residence, educational level, employment status, age, gender, and ethnicity. Affiliation, achievement, and power motivation factors were assessed.

Most of the personal characteristics investigated were determined to be similar in the two groups. Major differences were found in the place of residence and tenure period. Youth leaders in both groups responded to the motivation inventory in a similar manner, although the two groups originated in rural and urban environments. The 4-H and Campfire volunteer leaders were highly achievement and affiliation motivated.

Stevens, W. L. (1989). Leadership impact of the vocational agriculture program on Payson, Arizona. Master's Report, The University of Arizona, Tucson.

The purpose of this study was to determine the impact of the local vocational agriculture program on elected and/or voluntary leadership on the community of payson, Arizona.

Findings of the study included: (1) Recognized leaders in a community may not be limited to those who hod elected positions, but includes individuals who serve in a voluntary capacity; (2) the individuals sampled perceived that at least some postsecondary education is an important ingredient in becoming a recognized leader; (3) in Payson, Arizona, agricultural leaders are often also seen as community leaders; (4) students may not perceive the same individuals as being community leaders as their parents, but both groups use most of the same criteria in making their selections; (5) the impact of local vocational agriculture programs on Leadership extends beyond the local community; (6) the local vocational agriculture program's impact on community leadership can best be measured when it has been in existence at least 20 years; and (7) vocational agriculture programs impact on both agricultural and non-agricultural leadership in local communities.

Subramaniam, K. (1990). Attitudes of agriculture instructors toward their job in northern province, Sri Lanka. Master of Science thesis, The University of Arizona, Tucson.

The purpose of this study was to appraise the attitudes of the agricultural instructors providing village extension services in the northern province of Sri Lanka toward their job in the agriculture extension service.

Major findings indicate, in the aggregate, agricultural instructors like their job and have a good attitude toward their job.

The job factors offering the agricultural instructors the positive attitudes are the communication established between agricultural instructors and various layers of administration, the intrinsic reward of the job itself, and the relationship with co-workers and the working conditions. The job factors offering the negative attitudes was the pay and its adequacy for a comfortable living. Attitudes of agricultural instructors toward the job and its relationship with service were not significantly varied with service.

ARKANSAS

Lester, M. L. (1990). The effectiveness of the beginning scholars program in attracting high ability students to the college of agriculture and home economics. Masters thesis, University of Arkansas, Fayetteville.

The purpose of this study was to determine the factors that influenced college career choices of the participants in the Beginning Scholars Program. Data were collected from 98 participants by telephone in the spring of 1990 in the 1981-1988 program. Statistical analysis of the data included frequency
correlation coefficients, and analysis of variance.

The findings were that the factor Beginning Scholars Program background and adults other than parents were found to be significant in influencing educational decisions of the respondents. However, the Beginning Scholars Program, employment in an agricultural related job and parents significantly influenced agriculture or home economic majors. Membership in FFA, FHA, and 4-H were correlated to agriculture and home economic majors.

Scott, F. L. (1990). Student perceptions of agricultural education in the Mississippi delta region of Arkansas. Doctoral dissertation. University of Arkansas. Fayetteville.

The primary purpose of this study was to determine the differences in perceptions of Black and White students about agriculture education.

The study examined three hypotheses: students' perceptions regarding agricultural education, opportunities in the field of agricultural education, and barriers that exist for both groups.

The target population consisted of a random sample of public school agriculture classes in Southeast Arkansas. Data were collected from 698 students in the spring of 1990. Data were analyzed using Chi-Square. There were significant differences ($p < .05$) regarding agricultural education, opportunities and barriers in agricultural education.

CONNECTICUT

Mannebach, A. J. (1990). Revising and updating the competency based business management component of the Connecticut vocational agriculture curriculum. (Connecticut State Department of Education Funded Project). North Windham: EASTCONN.

The objectives of the project were (1) to review, further develop, and update the agribusiness management component of the curriculum and to integrate needed competencies into each unit of instruction; (2) to prepare a copy of the agribusiness component and enter it into the Connecticut State Department of Education computer system; and (3) to print copies for use by Connecticut vocational agricultural education teachers.

The project was conducted as a result of joint planning by the project director and the state consultant for agricultural education, Connecticut State Department of Education. The project director and project specialist reviewed existing, agribusiness management curricula, developed new units of instruction, and worked cooperatively with agricultural education teachers in the state to obtain input, suggestions and feedback. Units of instruction developed were (1) starting and establishing your own business; (2) principles of agribusiness; (3) money management in agriculture; (4) human relations in agribusiness; (5) written and oral communications; (6) sales and selling in agriculture; (7) advertising agricultural products and services; (8) agribusiness retail procedures; (9) computers in agriculture; and (10) agriculture in the international marketplace.

A three credit graduate course was held in conjunction with the project to obtain the input needed by the agriculture teachers enrolled. Related job titles and relevant industry validated competencies from the National Competency Study were identified and integrated into each unit of instruction. The agribusiness management curriculum was entered into the Connecticut State Department of Education computer system for easy update and revision in future years. Printed copies were made available to the teachers in Connecticut Regional Vocational Agriculture Centers. The updated curriculum will help students enrolled to develop the knowledge, skills and attitudes needed to become employed or self-employed in today's competitive labor market. The infusion of the competencies into each unit of instruction will help Connecticut agricultural education teachers make their instruction more competency based.

FLORIDA

Houghton, H. (1989). A comparison of two teaching methods used in an extension home vegetable gardening program. Master of Science thesis, University of Florida, Gainesville.

The primary purpose of this study was to determine the effectiveness of two program delivery methods (illustrated lecture and correspondence study) in relation to the amount of knowledge gained by participants registered in the home vegetable gardening program offered through the Pinellas County Cooperative Extension Service. The secondary purpose was to determine if there was an association between identified attitudes and descriptive attributes of program completers in both methods of program delivery. To accomplish the primary purpose, the design used in this study was a nonequivalent self-selected comparison pretest-posttest design.

The major findings of the study were: (1) illustrated lecture respondents had a higher mean change score (33.7), than did correspondence study respondents (17.9); (2) there was an association between respondent's race and method of teaching, with non-whites being more likely to participate in the illustrated lecture; (3) there was an association between educational level and method of teaching, with 56% of the correspondence study respondents and 27% of the illustrated respondents possessing at least a college degree; (4) there was an association between previous horticultural education and method of teaching, with 25% of the correspondence study and 49% of the illustrated lecture respondents having previous horticultural education; and (5) there was an association between method of teaching and wanting to learn more about home vegetable gardening, with 64% of the correspondence study and 100% of the illustrated lecture respondents wanting to learn more.

McCall, T. M. (1990). Relationship of teacher certification methods to secondary agricultural education program quality. Doctoral dissertation, University of Florida, Gainesville.

The purpose of this study was to investigate the relationship between the method of teacher certification and the teacher's success in conducting a supervised agricultural experience program and an FFA chapter. Eight southeastern states were included in this study.

The methods of certification were divided between regular certification (a college degree in agricultural education) and alternative certification (technical agriculture degree, occupational experience, temporary certification). Alternative variables also examined included length of teaching contract and teacher's previous experience in a secondary agriculture education program.

A stratified random sample of 300 teachers were mailed a questionnaire in the fall of 1989. Approximately 70% of the teachers

responded to the questionnaire. Data were analyzed using the Chi-square, Point-biserial correlation and stepwise multiple regression.

The findings of this were as follows: (1) There were low, positive correlations between SAEP activity and all three independent variables; (2) there were low, positive correlations between FFA chapter activity and the three independent variables; (3) when entered into a regression equation, method of certification and length of teacher contract were significantly related to SAEP program activity; (4) when entered into a regression equation,
method of certification was not significantly related to FFA chapter activity score.

Swill, R., Arrington, L.R., & Cheek, J.G. (1990). The relationship of supervised agricultural experience program scope to student achievement in practical skills in agricultural science. (Staff Study). Gainesville: University of Florida.

The primary purpose of this study was to determine the relationship between supervised agricultural experience program scope and student achievement for students enrolled in Practical Skills in Agricultural Science in Florida.

The primary hypothesis of the study stated that there was a positive relationship between achievement gain scores and supervised agricultural experience involvement.

Four extraneous variables were thought to be related to the dependent variable, student achievement, and were the basis for alternative rival hypotheses. They were FFA involvement, interest in agriculture, grade point average, and socio-economic status.

The target population consisted of nine public high school and junior high school classes of Practical Skills in Agricultural Science in Polk county, Florida. Data was collected from a final sample of 149 students. Data was analyzed by use of the Pearson product moment correlation coefficients, and there was a significant ($p>.05$) positive relationship between student achievement and grade point average. The primary independent variable, supervised agricultural experience program scope was not found to be positively related to student achievement.

Williams, B. (1990). Perceptions of Florida extension advisory committee members relative to reasons they initially serve, continue to serve, or leave committees. Master of Science thesis, University of Florida, Gainesville.

Members of extension advisory committees (Agriculture, Home Economics, 4-H, and overall) in 10 Florida counties were surveyed about what motivated them to join and/or stay/leave the committee. Selected demographic information was also collected. Sixty percent (266) of those surveyed responded. A follow-up of non-respondents revealed no

significant differences from the respondents. Frequency responses for each "Reason(s) for joining/staying/leaving" were used to calculate a "motive index" which was used to rank the relative impact of each statement. Each reason statement was classified as being related to one of three motives: affiliation, achievement, or power.

"Stayers" tended to join and continued to serve on advisory committees for affiliation and achievement-oriented reasons. Likewise, leavers joined for much the same reasons, but tended to leave the committee because the committee did not seem to be "achieving" anything. There seemed to be little "power" motivation on the part of stayers or leavers for joining/staying/or leaving. Comparisons of responses for joining and/or continuing/leaving according to type of committee revealed some differences between stayers and leavers. Agriculture committee members who "stayed", joined and continued serving for affiliation reasons. Agriculture committee "leavers" joined for affiliation reasons, but left because they felt the committee was not meeting their desire for achievement. 4-H committee members joined and remained in service for reasons that spanned all three of the motive categories. 4-H committee members who joined but did not complete their terms joined for a diversity of reasons related to all motive categories, but left the committee because they perceived that they did not have the power to influence decisions and that the committee accomplished very little. Home economics committee members who completed their terms joined for affiliation reasons and remained in service for reasons related to achievement and power. Leavers did so because they weren't given an opportunity to meet their motives for achievement.

GEORGIA

Fort Valley State College, Fort Valley

Borne, C. J. (1990). Perceived problems facing agriculture teachers in Georgia. Fort Valley: Fort Valley State College.

The Research and Development Committee of the Georgia Vocational Agriculture Teachers Association recommends the conduction of periodic research to identify teacher problems and possible solutions. Thus, the purpose of this study was to identify problems facing teachers as perceived by Georgia agriculture teachers. The objectives of the study were as follows: 10 to identify self-perceived problems facing Georgia agriculture teachers, 2) to determine problem areas warranting additional research.

Data collection were obtained from open ended questionnaires completed by 65 teachers during district teacher meetings in the Spring of 1990. The respondents listed the top 5 problems they believed were facing teachers in each of the following areas: supervised agriculture experience programs, classroom and laboratory instruction, FFA, and adult education.

The most frequently cited (23 or 35%) problem facing teachers in the are of SAE was the students lack of facilities for conducting SAE programs. The most frequently cited (16 or 25%) problem facing teachers involving the FFA was "no-pass-no-participate". The most frequently cited (17 or 26%) problem facing teachers in the area of classroom and laboratory instruction was (apathy) lack of student interest in classroom work. The most frequently cited (7 or 11%) problem facing agriculture teachers in the area of adult programs was that adults were too busy to attend classes.

More research is needed on the implementation of directed lab. type SAE programs for students that lack facilities for conducting SAE programs. Causes of student apathy should be identified and corrected through cooperative efforts between teachers, counselors and administrators.

University of Georgia, Athens

Avery, E. (1990). Competencies required for entry-level employment of mechanics in farm equipment dealerships in middle Georgia. Ed.S. applied project. The University of Georgia. (Under the direction of M.J. Iverson.)

The primary purpose of this study was to determine entry level competencies needed by mechanics in farm equipment dealerships in central Georgia. Specific objectives were to identify personal, basic and specific mechanical skills needed by beginning mechanics; to determine minimum educational/training levels required of new employees;

and to ascertain current and projected employment needs of farm equipment dealerships in central Georgia.

Ten major farm equipment dealers within 100 miles of Dublin, Georgia were identified. All agreed to provide information to the researcher. An interview schedule was developed from the review of literature and trial tested with teachers and related business personnel. Five point Likert-type questions were developed for personal skills (6 items), basic skills (20 items), and specific mechanical skills (90 items). In addition, certain demographic questions relating to characteristics of the respondent and needs of the business were asked. Most items were rated as very important to critically important; 14 items were rated "important" (desirable but not vital). Diagnostics and highly technical repairs were the lowest rated items. Most employers required a high school diploma and some training/experience. One additional mechanic was projected, on the average, for each business surveyed. It was recommended that teachers work closely with local implement dealers to provide the level of workers needed.

Kaylor, S. D. (1990). Characteristics of the Greenhouse Industry in the year 2000, with implications for curriculum development in Agricultural Education. Ed.S. applied project. The University of Georgia, Athens. (Under the direction of M.J. Iverson.)

The purpose of this study was to determine curriculum content for greenhouse production/management course work in agricultural education to prepare students for careers in this field in the 21st century. Specific objectives were to describe industry opinion leaders and to determine the characteristics of the greenhouse industry in the year 2000.

This was a national study using a two-round modified Delphi technique. Collection of data was composed of four phases: development of the instrument, selection of a panel of experts, and two rounds of the Delphi survey. The structured Delphi instrument consisted of 72 items on a Likert-type scale. This instrument was developed from the literature, and reviewed by a seven member panel for content and face validity. Thirty greenhouse experts were selected to participate through a national nomination process utilizing specialists from the Cooperative Extension Service in each state and the District of Columbia. Of the 30 experts invited, 26 agreed to participate.

Statistical calculations were performed to determine stability of responses between round, group agreement, and item ranking. Consensus was determined to have been met on an item if sixty percent of the respondents were in agreement and the group answer fell within the agree or disagree range. It was concluded that:

1. The opinion leaders were involved with many aspects of the industry, with a majority involved in research and education in addition to being officers of industry association.

2. The greenhouse industry will change rapidly, with increasing opportunities for trained employees. This will mean an increased need for education in greenhouse production/management techniques.

Forty-two items were identified as being essential for the agricultural education curriculum to prepare successful workers for the greenhouse industry of the 21st century.

Peavy, V. D. (1990). An assessment of the relationships between competencies presently taught and competencies that should be taught in agricultural mechanics classes in Georgia. Ed.S. applied project. The University of Georgia. (Under the direction of R.V. Herren.)

The purpose of this study was to assess what competencies were being taught by agricultural mechanics teachers in the state of Georgia, the relative importance of these competencies as perceived by the agricultural mechanics teacher, and what competencies need to be taught.

The population for this study was the teachers of agricultural mechanics in the state of Georgia. Of the agriculture education teachers in the state, 132 were identified by their district supervisors as being agricultural mechanics teachers. An instrument was designed for this study to assess the importance of selected competencies what was being taught, and what should be taught. A comprehensive list of possible competencies was selected from pertinent research and curriculum development efforts in agricultural education on agriculture mechanics. Through this process, the investigator identified competencies that might be taught in agricultural mechanics classes and combined competencies into a manageable form for this research effort. This list of competencies was refined by a panel of experts and organized into an opinionnaire which was then pilot tested. All appropriate recommendations, suggestions, and comments were incorporated into the final opinionnaire.

None of the sixty-four selected competencies were being taught by 100 percent of the teachers reporting in the state of Georgia, but all competencies were being taught somewhere in the state. Thirty-nine of the sixty-four competencies (60.9 percent) of the competencies were reportedly being taught by 50 percent of the respondents. Forty-nine of the sixty-four selected competencies (76.5 percent) received a rating of 4.0 or better, indicating that the competency was important and should be taught. Only two of the sixty-four (3.1 percent) received a mean rating below 3.0, indicating that the competency was of little importance. There were no differences in the perceptions of teachers from smaller schools in comparison to larger schools about the importance of competencies. The type of facilities available, the sharing of lab facilities and the availability of other mechanics classes in the school affected the perceptions of teachers regarding the importance of ag mechanics competencies and whether they should be taught. Ten recommendations were made based on the findings.

Beitia, M. G., Lancaster, L. L., & Riesenberg, L. E. (1990). A recruitment strategy for the College of Agriculture at the University of Idaho. (Staff Study). University of Idaho, Moscow.

This study was a cumulation of five years of continuous data collection conducted to identify the major factors that prospective students consider when selecting a college or university.

From the Fall semester of 1985 to the Fall semester of 1989, the College of Agriculture at the University of Idaho enrolled 361 new and transfer studetns which comprised the population of this study. The population also served as the subjects of this study. Of the 361 subjects, 283 returned a survey instrument accepted for study analysis. This study response rate was 78 percent. Factors identified as being of high importance to students when selecting a university were analyzed to determine if and how they could be influenced through recruitment. Student profiles were compiled and used to distinguish between traditional and nontraditional target groups.

The increase in the number of nontraditional students in the College of Agriculture is going to affect the recruitment and promotion efforts of the college. The nontraditional group is primarily female, from an urban residence, with no vocational agriculture experience and delayed entry students. The population that the College of Agriculture draws students from is chnging. Factors that influence a student's decision to attend a college or university must be considered in recruitment and promotion of the institution. Choice of a degree program offered by the College of Agriculture at the University of Idaho was exercised by students based on their perception of educational qualtiy in the College and the degree program's value in preparing ;them for future employment.

Any recruitment strategy will need to consist of a demographic and sociological market profile based on the population. Profiles will be based on those fact, factors, and social characteristics that the population deems important when making a value-based decision on a college or university to attend.

Beitia, M. G., Lancaster, L. L., & Riesenberg, L. E. (1990). Recruitment and marketing of the University of Idaho College of Agriculture. (Staff Study). University of Idaho, Moscow.

This study was the second of two parts used in the development of an overall long-range marketing strategy. The purpose of this study was to describe a method that will more effectively allow for recruitment and retention of quality students based on target group profiles.

Student profile composite were constructed in the first part of this study. These profiles were used to distinguish between the target foups of traditional and nontraditional College of Agriculture students. The factors influencing students to attend the College of Agricutlure

were analyzed to determine if and how they could be influenced through recruitment. For those factors that could be influenced through recruitment, a method was described that would more effectively allow for recruitment and retention of quality students.

For a university course of study to remain viable, it must meet the needs of the students that utilize it. Reputation plays a major role in the selection process a potential student uses to select a university course of study. It would seem logical that the reputation of any one particular course of study is "made" by the students in the program and[R] or those haveing completed the program. This reputation is then used by potential students in their decision-making process.

Lancaster, L. L., Beitia, M. G., & Riesenberg, L. E. (1990). Factors and profiles influencing students to enroll in the College of Agricutlure at the University of Idaho from 1985-1989. (Staff Study). University of Idaho, Moscow.

The College of Agriculture at the University of Idaho began the development of a marketing strategy in 1985 in order to maintain its position as a viable delivery system, for those individuals who need and can benefit from baccalaureate degrees in agriculture. This study is the first of two parts used in the development of an overall long-range marketing strategy.

From the Fall semester of 1985 to the Fall semester of 1989, the College of Agriculture at the University of Idaho enrolled 361 new and/or transfer students. These students were the population of this study. Of the 361 subjects selected for the study, 283 returned a survey instrument. The findings of this study indicate that significant differences exist in the importance of the factors that students consider when selecting a college or university between traditional and nontraditional College of Agriculture students. The increase in the number of nontraditional students in the College of Agriculture is going to affect the recruitment and promotion efforts of the college. There also exists differences in the importance that students intering various fields place on the influencing factors. These are very important to departments in their recruitment effort and in identifying their prospective student profile.

The following implications are based on the finding of this study. Recruitment efforts by universitites and college need to take into consideration the selection factors that various groups of students consider when selecting a college or university and incorporate these into their marketing plan. A recruitment and marketing plan for a university, college, or department needs to be continually revised to meet the needs of the potential student population.

Nickerson, L. S. (1990). An assessment of the Idaho Cooperative Extension System's participation in agricultural vocational guidance for youth. Master of Science thesis. University of Idaho, Moscow.

The purpose of this study was to determine the relationship of the Idaho Coopertive Extension System to agricultural vocational guidance for youth.

The Idaho CES literature relating to youth was examined for references to agricultural vocational guidance and career guidance. The 1988-1991 Idaho CES Plan of Work (POW) and the 1987 and 1988 Idaho CES National Accopmlishment Reporting System (NARS) were searched for key words and the frequencies were tabulated. Content analysis was used as the study methodology.

The major findings were: (1) a review of literature from secondary school systems, educational agencies, and the CES revealed a need for agricultural and other vocational guidance for youth; (2) the literature from secondary schools and educational agencies showed that the school stystems were not doing enough in agriculturla vocational guidance for youth; (3) CES data searched indicated an interest in career awareness, exploration, and development plans for youth; (4) the Idaho CES POW had limited mention of career awareness programs for youth; (5) the 1987 and 1988 Idaho CES NARS did not report any agricultural vocational guidance programs implemented.

The work force of the future is predicted to be insufficient to meet the demands of the American work world and agirculture, like other technical industrues, is going to face a shortage of workers. The opportunity for youth to obtain agricultural vocatioanl guidance either through the secondary schools or informal educaitonal agencies such as the Idaho CES is limited.

This study ws meant to be exploratory, with the intent of raising more questions about agricultural vocational guidance for youth than were answered. The purpose was to raise quesitons that would encourage secondary school educators and CES personnel to execute in-depth studies directed toward furthering agricultural vocational guidance for youth.

Riesenberg, L. E. & Stenberg, L. A. (1990). A profile of high school and beyond experiences of 1983 high school graduates described within the high school curriculum concentration of the graduates. (Staff Study). University of Idaho, Moscow.

The purpose of this study was to follow-up a sample of the 1983 Idaho high school graduates to determine their perceptions of their high school experience and to describe those students' current status in terms of education and employment.

The sample of this study for the data from the transcripts number 2082 and for the data from the mailed questionnaire numbered 1382 students. The data concerning the courses taken in high school and the data concerning high school achievement were collected from the

transcripts of the subjects, copies of which were supplied by the high schools. The post high school data were collected using a mailed questionnaire. Of the 1381 subjects mailed a questionnaire, 730 responded for a response rate of 53 percent.

Vocational concentrators were designated as those students who had completed 3 or more credits in one of the following occupational home economics, business education, marketing education, health occupations and trade and industry, excluding general labor preparation credits. General concentrators were designated as those students who had not completed 3 or more credits in one of the vocational areas.

The findings of this study indicate that there was no difference in satisfaction with their high school curriculum and high school experience between the two groups. The vocational concentrators had lower high school GPA's and class rank and the scores they received on the ACT were lower when compared to the general concentrators. The general concentrators had a higher rate of continuing their education after graduation than did the vocational concentrators. The vocational concentrators had a slightly higher rate of employment five years after graduation but the advantage was not to the degree expected when the number of general concentrators still in school was considered.

Riesenberg, L. E., Lancaster, L. L., & Stenberg, L. A. (1990). A profile of high school and beyond experiences of 1983 high school graduates described within the self-ascribed high school curricula of the graduates. (Staff Study). University of Idaho, Moscow.

The purpose of this study was to follow-up a sample of 1983 Idaho high school graduates to determine their perceptions of their high school experience and to describe those students current status in therms of education and employment.

The post high school data were collected using mail questionnaires. The data concerning the courses taken in high school were collected from the transcripts of the subjects. Data were summarized using descriptive statistics.

The subjects indicated which curriculum best described their high school courses. Out of the 730 respondents, 411 (56%) indicated a General Education curriculum, 223 (31%) a College Preparation Curriculum and 96 (13%) chose a Vocational Education curriculum.

The findings of this study indicated that there was a greater difference in the number of academic credits completed and the GPA between students declaring themselves college preparation and those declaring vocational education curricula. The college preparation group had a much higher rate of continuing their education the fall after graduation than did the other two groups. The vocational education group had a low rate of graduating from college when compared to the general education group. Vocational education students indicated having major problems finding a job at a higher rate than did college preparation students. High school counselors and teachers were cited at a very low rate as giving assistance in planning high school curriculums

by all three groups. General education students were least satisfied with their high school curriculum and also rated their overall experience in high school the lowest. The college preparation students were the most satisfied and rated their experience the highest.

Many of the stereotypes associated with the three high school curricula were supported and reinforced by the findings of this study.

Tun, U. A. (1990). Evaluation of moisture measuring instruments and methods of irrigation scheduling on potatoes. Master of Science thesis. University of Idaho, Moscow.

The purpose of this study was to investigate the moisture measurement methods and materials which lead to more efficient irrigation scheduling.

Conclusions were drawn from observations made in fields of four potato growers in southern Idaho. A tensiometer and an electric resistance sensor were installed in the first tow feet of the soil profile. The fields were visited twice a week to take gravimetric samples, and tensiometer and watermark sensor readings.

A comparison was made among the gravimetric, tensiometer, and watermark sensor. The gravimetric method requires a large amount of labor, time, and samples. The tensiometer is reliable for automated irrigation scheduling, even though it requires periodic maintenance and show less response at low moisture levels. The watermark sensor requires less maintenance and is inexpensive, and uses an electrical signal and shows more sensitive responsiveness at low moisture levels. The watermark sensor can be used effectively for many crop varieties and has potential uses for automated irrigation.

The water balance method, also called the checkbook method, is easy and well suited to farmers for on-farm management. Two types of the checkbook method were evaluated; the gravimetric soil samples versus daily evapotranspiration, and the irrigation rate versus daily evapotranspiration. Comparing these, the gravimetric soil sample demands labor, time, and soil samples for accurate irrigation scheduling, while the irrigation rate versus daily evapotranspiration methods requires only a measurement of the irrigation rate.

By using the watermark sensor for measuring soil moisture, and the checkbook method for irrigation scheduling, a grower will gain more profit by saving energy and labor without yield reduction.

ILLINOIS

Southern Illinois University, Carbondale

Abolaji, J. O. (1990). Analysis of computer use in agricultural research in Nigeria. Master of Science Thesis, Southern Illinois University, Carbondale.

The purpose of this study was to analyze microcomputer use in agricultural research activities in Nigeria. The study was to determine the use of microcomputer by agricultural researchers and administrators in one of the national research institutes (National Institute for Freshwater Fisheries Research). The focus of the study was to determine the status of computer use in agricultural research, determine the needs of researchers and administrators for microcomputers, and to identify hardware and software appropriate for agricultural research activities in NIFFR.

1. Based on conclusion 1, it is recommended that each research division and the administrative unit acquire a microcomputer and software appropriate for the job description of the unit. Research officers should be allowed unrestricted access to the microcomputer as microcomputer-user interaction would encourage better understanding and higher productivity.
2. NIFFR should initiate a training program on the basic use of microcomputers to the research staff, senior administrators and possibly to the students of Federal College of Freshwater Fisheries Technology.
3. Work processing: Wordperfect and Microsoft Word are recommended. Wordperfect 5.0 has capabilities for spell checking, thesaurus, and columnization. The Printing unit of NIFFR would find the columnizing capability useful in preparing progress, annual and technical reports of the institute.

   Spreadsheet: Lotus 1-2-3 and MYSTAT are recommended. These are some of the programs capable of handling descriptive statistics, regression, analysis of variance, test distribution and multivariate analysis. Lotus 1-2-3 capabilities of sort, move, copy, budget recalc and macros make it adequate for account and planning units of NIFFR. Data in a table can be altered to observe result of "what if" analysis. MYSTAT is a tool that can be used to design experiment, map field, label and print field notebook, collect, process and analyze data.

Amadi, N. S. (1990). A study of farm machinery and status of workshops in Rivers State, Nigeria. Master of Science Thesis, Southern Illinois University, Carbondale.

The primary purpose of this study was to investigate the problems associated with the utilization of farm machines in Rivers State,

Nigeria. Most of the research reviewed focused attention on how to eradicate the problem and put machines into use in developing countries like Nigeria. Utilization of farm machinery is the only way Rivers State can be industrialized. The three areas in this chapter were the review of personnel in the field of mechanization of agriculture, the role of adequacy and inadequacy of workshop towards mechanization, and the availability of spare parts in Rivers State of Nigeria.

Based on the research done in this study and the finding reported in chapter four, the following recommendations have been made:

1. Nigerian employees should aim at having standard workshop and where to get spare parts to facilitate agricultural mechanization in Nigeria.
2. Farmers must be educated to meet the demand of utilization of farm machinery in Rivers State.
3. Rivers State farm workers should function better if funds are made available to purchase spare parts and tools in the workshop.
4. Farm workers in Rivers State should note that other spare parts such as fan belt, battery, spark plug, gaskets, contact point and fuel filter etc. are also important in the workshop.
5. Workshops in Rivers State need to be equipped with small lathes, drill presses, woodworking machines, arc and torch-welding equipment, small power tools (for example electric drills), sanding equipment and numerous hand tools.
6. Further study is needed to develop a system of warehouse for the spare part availability at the site (farm).
7. Further study is needed to establish a policy of standard investment ratio of machine, resource distribution policy, spare parts policy and educational program policy in the utilization of farm machines in Rivers State, Nigeria.
8. The finding of the study should be made known to other employees in Nigeria for them to be aware of the problems.

Apantaku, S. O. (1990). <u>An analysis of the cultural, socio-economic, and service personnel factors related to adoption of tested agricultural innovations by small scale farmers in Oyo State, Nigeria</u>. Master of Science Thesis, Southern Illinois University, Carbondale.

The purpose of this study was to analyze the relationship between the factors and adoption of innovation by small scale farmers in Ibode farming community of Oyo State, Nigeria. The analysis of the relationship between these two variables (the factors and adoption) would therefore help to identify the problems related to adoption of innovation by the farmers.

Most small scale farmers do not adopt enough innovations, and most of the few that adopt, do so belatedly (Agric. News, 1982). What are the problems or factors affecting the farmers that do not make them adopt nor show positive and progressive attitude towards new innovations

being communicated to them. Is there actually a significant relationship between the factors and adoption?

Based on the finding of this study, the following recommendations were made:

1. The State government should develop an adult literacy and education campaign. Because of the relationship between education and innovation, emphasis should be laid on a literacy and education campaign for the adult farmers in rural areas.
2. The State government should establish an effective agricultural insurance and policy incentive program. This would encourage the farmers to take the risk of adopting new innovations.
3. Based on the fact that poor farmers are less innovative, and take little or no risk, the state government should increase agricultural input subsidies. More farmers should also be encouraged to form agricultural cooperative societies.
4. Well equipped and properly staffed schools should be established in the rural areas.

Kragh, P. (1990). Developing an electronic gradesheet for MS-DOS computers. Master of Science Thesis, Southern Illinois University, Carbondale.

The intention of this study was to develop an electronic gradesheet program for microcomputers using the MS-DOS operating system. This program has the flexibility to be configured to individual class needs and be able to calculate student grades.

Based on knowledge gained while researching and constructing the program and from information acquired from the follow-up questionnaire, note the following recommendations:

1. A continued effort to improve the information on the information and setup screens would be desirable.
2. It would be preferable for the gradesheet to have the ability to combine the information from several grading periods.
3. Additional similar studies on a larger sample from segments of education other than agriculture may be advantageous.
4. It may be beneficial to conduct an inservice activity for teachers which would demonstrate the functions and capabilities of the GRADESHEET program.
5. Increase the number of assignment entries per student from 12 to 16 students.
6. Increase the number of quiz entries per student from 6 to 16 entries.
7. Include the on-screen information pages on the greensheet. See Appendix E.
8. Create a written supplement to the GRADESEET program which:
   A. Explains in detail how to configure the on-screen setup page. Including an example of a completed page would also be helpful.

B. Explains how the on-screen setup page can be used to keep a running score during the grading period. Examples might be helpful.
C. Lists the macros used in the program and briefly explains how each is to be used.

McCrite, D. (1990). The development of an instructional lesson plan for the history of the FFA. Master of Science Thesis, Southern Illinois University, Carbondale.

The purpose is to develop an instructional lesson plan for teaching FFA history and important facts that would be used by all high school Vocational Agricultural teachers.

Recommendations for dealing with problems in the lesson plan include the following:

A. Introduction
   1. Describe who or how may I join FFA.
   2. Write question number two with simpler wording.
B. History of the FFA
   1. Describe new emblem change.
   2. Describe new wording in FFA Ceremonies.
C. FFA Creed
   1. Leave as it is. All material excellent.
D. What I Need to Know About FFA
   1. All material covered.
E. Dress Code
   1. Question five and six can not be stressed enough.
F. Supervised Agricultural Experience Programs
   1. All material is good.
G. Other Things You Need to Know about FFA
   1. Should take about junior degrees.
   2. Needs a better description of a Chapter Program of Activities.
   3. Add horse judging to list of contests.
   4. More explanation is needed about what awards can be won by the chapter.
H. What About My Section, District, Region or State?
   1. Add a section on which emblem goes with what officer needs to be added.
I. Skills, Quizzes and Tests, Worksheets, Word Search and Overheads.
   1. Add a copy of the FFA Salute.
   2. Print a copy of the Creed larger.

O'Dell, L. L. (1990). Development of a comprehensive student recruitment plan for the Southern Illinois University at Carbondale College of Agriculture. Master of Science Thesis, Southern Illinois University, Carbondale.

Research was initiated to develop a student recruitment plan for the Southern Illinois University at Carbondale (SIUC) College of Agriculture and to compare recruitment activities with those of other agriculture colleges. Telephone surveys were conducted to determine which agriculture institutions were perceived by other agriculture institution as having the most effective student recruitment programs.

Based upon these surveys, case studies of the agriculture student recruitment programs of institutions perceived as most effective were conducted. Institutions studied were Texas A&M University and California Polytechnic State University. Recruitment activities of the SIUC College of Agriculture also were documented.

Research studies indicated recruitment methods used by the institutions included using current students and alumni in recruitment, maintenance of a database containing information on prospective students, personalized mailings to students and campus visits. Research indicated the use of current students is an increasingly popular method used by institutions to attract students. Results were used to develop a recruitment plan for the SIUC College of Agriculture.

Remigius, F. O. (1990). Teachers perception of supervised agricultural experience programs in Nigeria. Master of Science Thesis, Southern Illinois University, Carbondale.

The objectives of this study were to:

1. Identify the supervised agricultural experience program criteria in Ondo State, Nigeria,
2. determine the role of Nigerian teachers of agriculture towards program success,
3. evaluate the perceptions of Nigerian teachers of agriculture about the SAEP concepts.
4. determine the differences between the perceptions of teachers of agriculture that had practical agriculture or SAEP related programs; and teachers that had no practical agriculture of SAEP related programs, in their secondary (high) school.

To facilitate the understanding of the goal of this study, the literature review focuses on the following:

1. Supervised Agricultural Experience Program criterion.
2. Teachers responsibilities towards quality SAEP.
3. Students competencies in agriculture.

Based on the findings and conclusions of this study, and the review of related literature, the following recommendations have been made:

1. Agricultural programs in Nigerian secondary schools should include supervised agricultural experience programs.
2. Teachers of agriculture should stress the importance of SAEP to their students. They should include SAEP in their programming.
3. Prospective teachers of agriculture should be required to participate in SAEP while in college; in-service training and workshops should be conducted to increase Nigerian teachers awareness of SAEP.
4. The State School Boards, in collaboration with the Federal Ministry (Department) of Agriculture, should conduct informational SAEP workshops, and orientation for educational planners, administrators, and teachers of agriculture in Nigeria.
5. Nigerian government in collaboration with agricultural education planners, should emphasize SAEP for a meaningful agricultural development in Nigeria.

Schwamberger, J. (1990). Incorporating agriscience into the vocational agriculture curriculum. Master of Science Thesis, Southern Illinois University, Carbondale.

What are the steps involved when implementing agriscience into the typical vocational agriculture curriculum? One must first address the following questions:

1. Does it meet the needs of the students?
2. Will the program meet the school board's needs?
3. Does it meet the science department's needs?
4. Does it meet the parents' needs?
5. Will it meet the vo-ag instructor's' needs?

Agriscience can and will meet the needs of the vo-ag instructor in two important ways:

1. It provides the access to a greater number of students in need of a science credit, which means better enrollment numbers.
2. It provides access to some of the higher achieving students who want to meet college entrance requirements.

Seilenga, H. M. (1989). Mechanization of cassava root processing by extrusion, using human and electric power. Master of Science Thesis, Southern Illinois University, Carbondale.

The purpose of this study was to evaluate the use of a meat grinder to reduce cassava roots into pulp with hand, pedal mechanism and an electric motor as sources of power.

This research suggests other areas that should be investigated by future research. Areas to focus on might be conducting more trials, testing various gear ratios and redesigning the meat grinder with special attention to the hopper size, feed screw size and the bearing between the feed screw and the small hole in the cylinder. Also, this

process and results should be introduced to farmers in Africa to further determine feasibility.

University of Illinois, Urbana-Champaign

Hamzah, R. (1990). The use of school land laboratories among agriculture teachers in secondary schools in West Malaysia. Doctoral dissertation, University of Illinois, Urbana-Champaign.

The primary purpose of this study was to examine the use of the school land laboratory as an instructional resource in the secondary and secondary vocational agriculture schools in West Malaysia.

This study employed a descriptive-comparative survey method. The population consisted of lower secondary school agricultural science teachers (N=489), upper secondary school agricultural science teachers (N=65), and vocational agriculture teachers (N=27). Data were collected through a mail questionnaire consisting of four parts: Part I statements indicated the extent to which teachers used land laboratories, Part II statements determined teachers' attitudes toward the land laboratories, Part III statements indicated competencies teachers needed in using land laboratories, and Part IV statements concerned problems teachers faced in operating land laboratories.

The findings showed that lower and upper secondary school agricultural science teachers usually supervised their students, provided assignments, provided classroom instruction prior to task performance, and required students to apply approved practices when working on land laboratories. Vocational agriculture teachers reported that they required students to apply approved practices and supervised them when working on land laboratories. In general all teachers used land laboratories in very similar ways, but vocational agricultural teachers used more diverse activities, presented more demonstrations, and provided less structured assignments to students while working in land laboratories. Teachers in this study had favorable attitudes toward land laboratories. There was a significant relationship between teachers' use of land laboratories and teachers' attitudes toward land laboratories for all groups of teachers.

Managing discipline as students work in land laboratories and connecting land laboratory activities to classroom instruction were considered very important competencies for teachers in using land laboratories. Problems reported by teachers were maintaining land laboratories during vacation, too many students with low ability, vandalism, and lack of labor.

Kathuri, N. J. (1990). A study of the new agricultural education curriculum in the secondary schools of Kenya. Doctoral dissertation, University of Illinois, Urbana-Champaign.

The purposes of this study were to investigate how the new Kenyan agricultural education curriculum was being implemented, factors influencing the implementation process and how the implementation affected students' achievement in agricultural education.

A sample of 53 secondary schools was randomly drawn from a total of 969 schools in two provinces. The sample represented rural and urban schools as well as government maintained, government aided and private schools. An achievement test was developed based on the first two years of the secondary school agriculture curriculum. The test was administered to 3,264 Form III students who were supposed to have covered the Forms I and II parts of the curriculum. One survey instrument was administered to the agriculture teacher and a second instrument was administered to the headmaster/headmistress of each participating school.

Results indicated that school location and category had no significant influence on methods used in teaching agriculture or content coverage. More topics were either partially or not covered as instruction progressed. Lack of resources and time limitation were reported as the main reasons for partial or no content coverage. Teacher qualifications, school location and school category were observed to have a significant effect on students' achievement. Content coverage and extent of using objectives in instructional planning had no significant influence on students' achievement. An analysis of 13 selected variables related to school educational environment indicated significant influence of the variables on students' achievement but not on content coverage or extent of using objectives.

In conclusion, school location, school category, teacher qualification and availability of books were significant factors related to students' achievement. Second, there was no relationship between instructional planning and curriculum implementation. Third, teachers used more theoretical than practical-oriented teaching methods. Fourth, resources available for teaching agriculture varied in secondary schools and most schools lacked these resources.

Law, D. A. & Pepple, J. D. (1990). Secondary agricultural education core curriculum. Phase III. (Staff Study funded by Illinois State Board of Education, Department of Adult, Vocational and Technical Education). University of Illinois, Urbana-Champaign.

The primary purpose of this phase of the study was to develop curriculum in two major cluster (content) areas: Agricultural Resources and Horticulture. The Agricultural Resources cluster consists of five modules in environmental protection; five modules in forestry; nine modules in fish and wildlife management; and seven modules in outdoor recreation.

The Horticulture cluster consists of six modules in horticultural business operation and management; twelve modules in horticultural science; four modules in horticultural mechanics; five modules in landscaping; and five modules in floral design.

Each module contained student learning objectives, problems and questions for study, suggested teaching activities and procedures, references, information sheets, transparency masters, study worksheets, tasks addressed, and state goals for learning were addressed.

Osborne, E. W. & Moss, J. W. (1990). Science applications in agriculture: Developing and testing new agriculture courses for the secondary schools. University of Illinois, Urbana-Champaign.

Goals of the project were to attract a broader student population into secondary agricultural education programs, to improve the image of these programs, and to create stronger curriculum ties between agriculture and the sciences in secondary schools. The new courses developed are aimed at expanding course offerings in agriculture and providing an innovative approach to course design. In addition, the new courses may be used to initiate agriculture courses and programs in secondary schools currently lacking agriculture in their curriculum.

Curriculum for a one semester course, Biological Science Applications in Agriculture -- Plant Science, was completed during 1989-90. The course is designed to reinforce and extend students' understanding of science by associating basic scientific principles and concepts with relevant applications in agriculture and to deepen students' understanding of science as content and as process through the use of numerous laboratory experiments and exercises.

Three products were developed: (1) a promotional brochure designed primarily for parents, administrators, and teachers; (2) a set of course outlines for two one-semester science applications in agriculture courses -- one in physical science applications and one in

biological science applications; and (3) a Teacher's Guide for the new course Biological Science Applications in Agriculture -- Plant Science. This product consists of 35 ready-to-use lesson plans, all experiment based. Also included is an introductory section containing the course description, course objectives, course outline, agricultural applications and science concepts, suggestions for including the course in the secondary curriculum, teaching suggestions, strategies for working with science teachers, a list of references; and the identification, cost, and source of lab materials and equipment needed in teaching the course.

Wolf, R. E. (1990). Procedures and practices used in successful Young Farmer Programs in the United States - Developing a model for providing adult education in agriculture. Doctoral dissertation, University of Illinois, Urbana.

The main purpose of this study was to determine the most effective procedures and practices used in successful local young farmer programs. Another purpose was to develop an adult education program strategies model that can be used by agricultural educators.

A descriptive survey was administered to young farmer program advisors from the top 20% of the local young farmer programs in the United States.

The data were collected through a questionnaire which assessed the degree of use and the effectiveness of methods used pertaining to each of the following constructs: (a) recruiting members, (b) planning instruction, (c) providing instruction, (d) planning the activities of the association, (e) implementing the activities of the association, and (f) performing the advisor's role. The instrument also asked for the opinion of the advisors regarding selected statements about the young farmer program and gathered selected demographic data.

The instrument was pilot tested for clarity and examined for validity and reliability. Frequencies, percentages, measures of central tendency, measures of variance, measures of association, t-tests, ANOVA, and chi-square were the statistics used. Since no significant differences between the respondents and non-respondents were observed, the results obtained from the respondents were generalized to the accessible sample.

The major findings and conclusions were: (1) advisors with more teaching experience tend to have a higher opinion of the importance of the young farmer program, (2) advisors of successful young farmer associations working more hours with the young farmer program each month tend to have a higher opinion of the importance of the young farmer

program, (3) advisors of successful young farmer associations generally used procedures and practices they rated the most effective, (4) advisors of successful young farmer associations nationwide use a variety of strategies for managing the young farmer association, (5) procedures and practices rated the most effective and useful were included in a model for adult agricultural education programs.

INDIANA

Ellenburg, J. E. (1990). Factors affecting student enrollment in agricultural education and membership in the FFA within the public secondary schools in Indiana. Purdue University, West Lafayette.

The purpose of this study was to explore the factors affecting student enrollment in agricultural education and membership in the FFA. Questionnaires received from 147 juniors enrolled in 12 Indiana public secondary schools which had agricultural education programs as of February 1990 were analyzed in this study. The juniors surveyed represented three population groups which were: (Group 1) students enrolled in agricultural education and members of the FFA, (Group 2) students enrolled in agricultural education but not members of the FFA, and (Group 3) students not enrolled in agricultural education or members of the FFA.

The data indicated that the students in Group 1 had a positive attitude concerning the value of agricultural education. The students in Group 2 had a somewhat less positive attitude concerning the value of agricultural education than that of Group 1. It was found that the students in Group 3 were neither negative or positive in their perceptions about the value of agricultural education.

The following factors were identified by 75 percent or more of the respondents as contributing to the students' decision to enroll in agricultural education (Group 1 and Group 2): (1) Attracted by classes and teachers, (2) recognized future benefits, (3) develops leadership, citizenship, and cooperation, and (4) includes the FFA organization. Students in Group 3 identified the following factors that affected their decision not to enroll in agricultural education: (1) No benefits were recognized, (2) not encouraged by counselors, and (3) not interested in the FFA. Students in Group 1 identified the factors that affected their decision to become members of the FFA as: (1) Develops leadership, citizenship, and cooperation, (2) local activities, (3) promotes agriculture, (4) brings recognition to school, community, and nation, and (5) job exploration.

The study did not reveal the factors that contributed to the students' decision not to become members of the FFA; therefore, not factors were presented concerning this area. A review of related literature revealed that the following factors may contribute to students not enrolling in agricultural education or becoming members of the FFA: (1) Name and symbols of organization (National Research Council, 1987); (2) Image of agriculture (Crawford, 1987); and (3) Increased class requirements and college entrance (Pals, 1987). However, this study did not find these factors as reasons for students not enrolling in agricultural classes or becoming members of the FFA.

Alonge, A. J. (1990). An analysis of perception of selected Iowa farmers regarding innovation characteristics and institutional factors influencing the adoption of low-input sustainable agricultural practices: Implications for agricultural extension education. Master of Science thesis, Iowa State University, Ames.

The main purpose of the study was to determine the perception of selected Iowa farmers regarding innovation characteristics and institutional constraints influencing their adoption of selected low-input sustainable agricultural practices. Specifically, the study set out to identify the perceptions of Iowa farmers regarding the profitability, compatibility, and complexity of selected low-input sustainable agricultural practices in nitrogen fertilizer and herbicide management; and to analyze how these perceptions, in concert with institutional and demographic variable, impact the adoption of practices.

The population of the study consisted of active or associate members of the Iowa Young Farmers Educational Association, Inc. An oversample procedure was conducted to ensure adequate response rate. An Apple random-number computer program was used to select a sample of 300 respondents. The instrument, a mailed questionnaire, was sent out to respondents in the first week of January, 1990. The initial mailing resulted in the return of 87 usable questionnaires. A second follow-up procedure resulted in a total of 115 questionnaires representing a 38.3% response rate but 21% of the total population. The post-hoc reliability testing of the seven-section questionnaire yielded a reliability coefficient of 0.89.

Majority of the respondents (69.5%) were aged between 20 and 39 years. Their average years of farming experience was 17.5 years. Over 66% of all respondents had either high school or some college education, while 32.2% had completed college. The size of the farm operations ranged from 6-3000 acres with a mean farm size of 545.5 acres. The proportions of farm areas rented either on cash or share basis ranged from 0 to 100 percent. In general most respondents had fairly positive perceptions regarding the profitability and complexity of the practices. Respondents underestimated the seriousness of groundwater contamination on their farms, though most of them recognized the seriousness of the problem at the state level. Most respondents indicated that they were adequately informed about most of the practices. Majority of the respondents had very few or inadequate contacts with government agencies such as the Cooperative Extension Services, the Experiment Station and the Soil Conservation Service and Districts with regards to low-input agriculture information. Mass media and agricultural chemical dealers were the most frequently contacted sources of information. Demographic and farm firm characteristics and the perceptions of groundwater contamination were poor predictors of the level of adoption if innovations. Diffusion variable such as the adequacy of innovation information and level of institutional contact were significantly related to the adoption of innovations. Perceptions of innovations

especially the perceptions of practices' compatibility were the best predictor of the level of adoption.

Caliva, J. (1989). Perceptions of the agriculture secondary school students toward the effectiveness of the 4-S program in the Guanacaste Province, Costa Rica. Master of Science thesis, Iowa State University, Ames.

The purpose of this study was to determine the effectiveness of the 4-S program as perceived by student members enrolled in high school agriculture and home economics programs in Costa Rica. The counterpart of the 4-S program is the 4-H program in the United States but there is also some similarity with the FFA in that 4-S is part of the high school vocational agriculture program. The population for this study was 4-S members in the Guanacaste Province, Costa Rica. Twenty-five percent of the members were randomly sampled. Data were collected by questionnaire administered in person by the researcher.

The overall effectiveness level of the 4-S program was rated high by the members. The item rated highest was "I think 4-S is a valuable program." It was followed by "classwork, projects, and 4-S are parts of a good vocational agriculture program." The items rated lowers were: (1) "4-S helps me to organize meetings"; (2) "4-S helps me to consider that change is a part of life"; and (3) "As a 4-S member, I am recognized as a leader by those my own age".

Caliva, J. (1990). An assessment of the professional competencies needed by 4-S teachers/advisors in Costa Rica. Doctoral dissertation, Iowa State University, Ames.

This study identified 67 professional competencies needed by teachers/advisors to carry out the 4-S (4-H) program in Costa Rica. The target population for this study consisted of vocational agriculture teachers, home economics teachers, principals, and national advisors who have participated in the 4-S program. Data were collected by questionnaire and open-ended interview.

Findings indicate that there were significant differences in perceptions of the respondents when considering teaching methodologies, oral communication skills, written communication skills, program evaluation, and technical knowledge needed. No significant differences were found when considering competencies in understanding human behavior and program execution. The most important competencies a 4-S advisor should possess include: (1) keep up-to-date in technical areas, (2) determine objectives of the 4-S secondary school program, (3) possess knowledge of farming systems in the are, and (4) keep up-to-date in educational methods.

Cashman, K. (1990). A grounded theory describing factors of the adoption process of the alley farming technology by Yoruba women in Nigeria. Doctoral dissertation, Iowa State University, Ames.

This study aimed to discover a theory from data on rural Yoruba women in southwestern Nigeria. The theory deals with farmers exposed to an agroforestry technology called 'alley farming'. A theory of agricultural change was developed to provide a framework for alley farming research and extension. Grounded theory is an inductive system for generating theory from empirical data (Glaser and Strauss, 1967). The constant comparative method, which alternated between data collection and data analysis, was used during fieldwork in 1984-86. Before propositions and hypotheses were defined, data were collected, coded, and analyzed to develop concepts or premises. According to Reynolds (1971, p. 78) description of theory construction, the axiomatic theory of farming women and agricultural innovation consists of four "basic premises, each independent of the others, from which the propositions of the theory were logically derived."

Propositions, based on premises established during 1984-86, were field-tested in 1988. Data were collected over four years, 1984-86 and 1988, from participant observation, open-ended interviews, and document analysis. From the accompanying coding and data analysis during 1984-86, a conceptual framework emerged which corresponded with the Concerns-Based Adoption Model (CBAM) develop by Hall, Wallace, and Dorsett (1973). This model was modified to illuminate the developmental processes that farmers experience as they implemented the alley farming technology. Questions arising from previous research were framed within the CBAM for a final round of data collection in 1988 to solicit farmers' opinion and reactions to alley farming.

Several major factors that inhibit or facilitate the diffusion of alley farming ere identified, including a) clarification of Yoruba women's role in farming; b) crucial, but less visible, reasons for specifically targeting women in alley farming outreach; c) sociocultural conflicts and congruence factors; d) the undermining of local realities by ignoring indigenous, land tenure norms that give women usufruct rights to farmland; e) power exerted from outside the cultural system; and f) compromises negotiated through change facilitators. Examples, grounded empirically, demonstrate that the theoretical framework provided both a diagnosis of farmers' needs and a prescription for further action.

Creswell, J. L. (1990). An identification and assessment of extension educational delivery systems for training of private pesticide applicators. Doctoral dissertation, Iowa State University, Ames.

The purpose of this study was to identify and assess educational delivery systems used by selected county Extension agriculturalists in private pesticide applicator training. The study provided information

of educational delivery systems, teaching methods and instructional tools, the pesticide applicator training program, and demographic information of selected county Extension agriculturists in a four-state area in the upper Midwest.

A stratified sample consisting of one-half of the county Extension agriculturalists in Iowa, Nebraska, North Dakota, and Wisconsin provided the participants in this study. A mailed survey instrument was used in data collection. Data were statistically analyzed by using means, standard deviations, analysis of variance, t-tests, frequencies, percentages, and correlations.

The major findings of the study were that the average county Extension agriculturalist surveyed: (1) was male, in his forties, had some formal teaching experience, was about mid-career, and had a master's degree; and (2) did not apply a variety of teaching-learning principles nor a variety of teaching methods and instructional tools in pesticide applicator training programs. Statistical differences among states regarding teaching methods and instructional tools may reflect the extent of training received by participants and the availability of these methods/tools. Statistical differences among states with respect to perceptions regarding pesticide applicator training and program evaluation may reflect the attitudes, leadership and organizational policy of state legislatures and state Extension administrators.

State Extension administrators should: (1) encourage the use of a variety of instructional methods and teaching tools; (2) give county Extension agriculturalists the means to modify private pesticide applicator training to meet clientele needs; (3) encourage local involvement in program planning; (4) provide training in use of instructional methods/teaching tools, and in program evaluation; (5) make an education specialist a part of the state staff/administrative team; and (6) base performance reviews on Extension professionals equally on teaching (process) skills and product goals achieved.

Frick, M. J. (1990). A definition and the concepts of agricultural literacy: A national study. Doctoral dissertation, Iowa State University, Ames.

The purposes of this study were to refine a group definition of agricultural literacy, identify agricultural subject areas that fall within the framework of agricultural literacy, and identify those concepts about agriculture that every citizen should know. This investigation was conducted using the Delphi technique. Panelists were nominated by land grant university agricultural education faculty. Data were collected by three instruments.

Agricultural literacy describes the understanding and possession of knowledge needed to synthesize, analyze, and communicate basic information about agriculture. Agricultural literacy encompasses 11 broad agricultural subject areas. Five hundred ninety concepts were generated by the panelists and 394 remain after refinement. The concepts generated demonstrate the vast amount of knowledge from other

disciplines agriculture applies to produce food and fiber. The concepts also indicated how much agriculture is affected by and affects the world in which we live.

Kelling, A. (1989). Farmer uses of information sources. Master of Science thesis, Iowa State University, Ames.

The central purpose of this investigation was to determine and analyze farmers' use of information sources and the perceptions of extension state specialists of Iowa State University of Farmers' use of information sources. Data were collected using two similar questionnaires to assess the University extension state specialists of farmers' use of information. The population for this study included 49 extension state specialists and 396 randomly selected farmers from Iowa. A total of 42 usable questionnaires from extension state specialists and 141 questionnaires from farmers were collected. The data were analyzed using frequencies, percentages, means, standard deviations, t-tests, and one-way analysis of variance. The majority of the farmers did not use computers and new information technologies. The extension state specialists used computers and new information technologies more frequently than did farmers. The information source most often used by farmers was that of agricultural newpapers and magazines for the areas of crop production, animal production, and agricultural mechanics. For agricultural management, farmers most preferred one-on-one consultations. The extension state specialists perceived one-on-one consultations as the most important source of information for all areas. The younger the farmers, the more they used information sources. This trend also included the use of agricultural on-line databases. The higher the level of education of farmers, the more they tended to use information sources. The larger the farm operation, the more information sources were used by farmers in crop production and animal production. Computer use and use of agricultural on-line databases had a positive impact on the usage of other information sources.

Keninger, A. L. & Miller W. W. (1990). An identification and analysis of computer knowledge and skills needed by agricultural science technology and marketing students for employment in agricultural industries. (Staff Study). Iowa State University, Ames.

The purpose of this study was to determine what computer knowledge and skills are needed for entry level agricultural business employees and to develop a curriculum to meet the needs of agricultural businesses in central Iowa. The population for this study consisted of 406 businesses in four Iowa counties: Hardin, Marshall, Tama, and Grundy. A random sample of 165 businesses was selected. Data were collected by means of two mailed surveys.

The data indicated that the major applications of computers in agricultural businesses were the following: work processing,

spreadsheets, data base management, accounting, and special use programs. Computer skills most needed by entry level employees included: care and handling of hardware and software, using a work processor for business correspondence, and using a spreadsheet for common business applications. Computer skills least needed included: desktop publishing, computer assisted drafting, and using a plotter. A list of 26 areas and 56 skills were identified for the curriculum.

Kunwar, N. (1989). Roles of field level agricultural extension workers in Nepal as perceived by agricultural extension personnel. Doctor of Philosophy dissertation, Iowa State University, Ames.

This study was conducted to determine if significant differences existed in the perceptions of various groups of extension personnel for the importance of field level extension workers' roles and the performance of these roles, and to determine if significant differences existed between the importance and performance of roles as perceived by extension personnel. A survey instrument consisted of 91 extension tasks grouped under eight roles. Data were collected in group settings.

The results indicated that the most important tasks were not the best performed tasks, or the best performed tasks were not the most important tasks. Highly significant differences were observed between the importance of roles and the performance of those roles as perceived by groups of extension personnel. The perceptions for performance were at a significantly lower level than the perceptions for importance.

Macias-Lopez, A. (1990). An assessment of agricultural education in Mexico, Central America, and the Caribbean. Doctoral dissertation, Iowa State University, Ames.

The objectives of this study were to identify, collect, and catalog references about agricultural education and to assess the state of agricultural education at the collegiate level in Latin America. Data were obtained through a bibliographic mailed survey and through questionnaires from professors, students, and graduates from educational institutions.

A collection of more than 600 references about agricultural education in Latin America was compiled. The perceptions of professors, students, and graduates toward the quality of agricultural education at the collegiate level in Latin America in terms of preparing professionals to deal with the problems of the agricultural sector are positive. The concepts rated highest included adult education; analysis and information of rural development policies; and technical assistance in crop and livestock production.

Marcellino, J. R. (1990). An assessment of the professional competencies perceived to be needed by agricultural extension agents of the National Institute of Agricultural Technology in Cordoba Province, Argentine Republic. Master of Science thesis, Iowa State University, Ames.

The primary purpose of this study was to identify and assess the professional competencies perceived to be needed by agricultural extension agents of the National Institute of Agricultural Technology in Cordoba Province, Argentine Republic. The objectives developed to accomplish this purpose were: (1) to identify the major professional competencies thought to be important to the Province of Cordoba extension personnel as perceived by agricultural extension agents; (2) to identify the major professional competencies thought to be important to the Province of Cordoba extension personnel as perceived by agricultural extension directors; (3) to analyze the effects of selected demographic data on the perceptions of agricultural extension agents and agricultural extension directors, regarding competency training required by agricultural extension personnel in the Province of Cordoba; and (4) to compare perceptions between agricultural extension agents and agricultural extension directors, regarding competency training required by agricultural extension personnel in the Province of Cordoba.

The target population used in this study consisted of all extension personnel (58) in the level of Cordoba Regional Center. The population included extension specialists, extension directors, technical advisors, home economic advisors, and youth advisors.

Descriptive statistics were used to analyze the dat obtained from extension personnel for the demographic section of the questionnaire. Analysis of variance and Duncan procedures were used to compare perceptions among groups. An alpha value of .05 was used as the critical value.

The findings indicate that: Extension personnel perceived that most of the identified competencies were important to the professional role of extension agents; Extension specialists in this study perceived that more training was needed in goals setting, evaluation, motivation and interaction, working with groups, presentation, farming systems research, and personnel management; the lower the level of education, the greater the perceived need for training in the area of planning and communication; older professional extension agents had a greater perceived need for training in personnel management; Extension professionals in general had a great need for training to improve their presentation and teaching skills; and most of the extension personnel perceived a need for additional training following their university education.

Memon, M. Y. (1989). Economic competencies needed and possessed by farmers in Hyderabad District, Sind, Pakistan. Doctor of Philosophy dissertation, Iowa State University, Ames.

The purpose of this study was to identify the economic competencies needed and possessed by the farmers in Hyderabad District, Sind, Pakistan. The target population for this study consisted of 97 randomly selected farmers and 26 agriculture officers in Hyderabad district, Sind, Pakistan. Thirty-seven competency statements constituted the economic competence portion of the questionnaire. A 1-5 point response scale was used to assess the degree of competence needed and the degree of competence possessed by the farmers included in the study. The data were collected through personal interviews with the respondents.

The findings show that farmers possess low economic competence, whereas they need high competence as identified by themselves and agriculture officers. As perceived by respondents, a significant difference at the 0.01 level existed between the level of competence needed and possessed by farmers for all economic competencies included in the study. There was no significant difference in the overall mean for the economic competencies needed and possessed as perceived by farmers when grouped by years of farming experience. Farmers with a high school education or more tended to rate competencies significantly higher then farmers with lower levels of education.

Mohamed, I. E. (1990). Self-perceived orientation training needs of new extension professionals in Iowa. Master of Science thesis, Iowa State University, Ames.

The purpose of this study was to assess what the extension professionals in Iowa, perceived as their orientation needs and to determine preferred methods for delivering orientation information. The method used was an ex post hoc descriptive one with the purpose of gaining new insights into the perceived needs of the population. A questionnaire was used for data collection. The population included 120 professionals in the Iowa Cooperative Extension Service hired within the last five years (1984-1988).

Orientation training items included in the areas of human behavior and program development and evaluation were highly ranked on both perceived needs for training and importance. Respondents preferred a variety of methods for orientation training.

Muller, J. E. (1990). An analysis of the agricultural education B.S. graduates from 1981-1989 and their perceptions of the teacher education program at Iowa State University. Doctoral dissertation, Iowa State University, Ames.

The purpose of this study was to analyze the characteristics and academic ability of Agricultural Education graduates from Iowa State University who chose to teach and those who did not and their perceptions concerning the Teacher Education Program. The population studied consisted of 294 graduates from the 1981-1989 academic years. Data relevant to this study were extracted from a longitudinal research project conducted by the Research Institute for Studies in Education at ISU. Teachers and nonteachers were compared on four measures of academic ability. Those graduates choosing to teach and those not were equal in terms of overall academic ability. There were generally no significant differences between the groups and their ratings of the teacher education program. Both groups felt best prepared in preparing and using media, and planning and delivering instruction. Both groups felt somewhat underprepared in assessing and dealing with learning disabilities and classroom management. The majority of graduates would "prepare to be a teacher again" regardless of their long-range career plans.

Spotonski, D. R. (1990). An assessment of the leadership practices used by Agricultural Education Department executive officers. Doctoral dissertation, Iowa State University, Ames.

The purpose of this study was to identify the leadership practices utilized by agricultural education department executive officers through the use of a self-evaluation and a faculty member evaluation. The instrument used for the study was entitled the Leadership Practice Inventory (LPI) designed by J. M. Kouzes and B. Z. Posner (1988). The population of the study consisted of 56 DEOs in agricultural education and one faculty member from each department. Department executive officers were evaluated on their level of utilization of five leadership practices which were determined from responses to 30 leadership behavior statements.

Results provided from a t-test pairs program indicated that DEOs in agricultural education perceived their leadership ability to "enable others to act" significantly higher at the .01 level than was indicated by faculty member responses. Significant differences at the .01 level were found between DEO and faculty member responses on the following leadership behaviors: involving others in planning, treating others with respect, creating a climate of trust, and getting others to feel ownership for their projects. Significant differences at the .05 level were indicated for the leadership behaviors of allowing others to make decisions and practicing what is espoused.

Stewart, F. & Miller, W. W. (1990). Program standards, how well do the student teaching centers in Iowa meet them? (Staff Study). Iowa State University, Ames.

The purpose of this study was to assess how well the student teaching centers in Iowa meet the Iowa Standards for Quality Vocational Programs in Agricultural Education. A questionnaire was developed from the 66 standards. The 41 schools used as student teaching centers by the Department of Agricultural Education and Studies constituted the population for this study. Agriculture teachers at these schools used the questionnaire to perform a self-assessment of their school and program.

All 41 schools met 17 of the listed standards. These standards included: experience programs, FFA, student advising, teacher certification, and teacher involvement with professional organizations. Most other standards were met by at least 90 percent of the schools. The standards met least often included: Red Cross first aid certification, at least one planning period and one supervision period per day, visiting prospective students, and a two year basic course for all students.

Tolchinsky, M. A. (1989). Adoption of practices related to integrated pest management in corn production. Master of Science thesis, Iowa State University, Ames.

The purpose of this study was to determine the extent to which farmer cooperators and noncooperators of the Iowa Pest Managment (IPM) program adopted recommended practices in corn production, their perceptions about the characterstics of these practices, their judgments about the influence of these characteristics in their decision to adopt, and their attitude toward the IPM technology and different sources of information. Data for this study was gathered by the use of a mailed questionnaire. The instrument was mailed to two groups. The first group consisted of 44 cooperators of the IPM extension program. The second group consisted of 120 randomly selected noncooperator farmers. Responses were analyzed using descriptive statistics, t-tests, multiple correlations, factor analysis and one-way analysis of variance.

There were no significant differences observed between cooperators and noncooperators when farmers' and farms' characteristics were considered. The overall adoption level of the 13 practices studied was low to moderate. Practices which were more specific to the IPM philosophy (use of economic injury level, economic threshold, pest control records, pest control consultant, and nontraditional pesticides) were less frequently used than practices less related to the IPM technology. Both groups perceived trialability as the characterstic being less important in adopting IPM practices, followed by observability and simplicity, whereas compatibility and relative advantage were reported as being more important.

Ubadigbo, F. N. (1989). Educational implications for integrated crop and livestock farming systems research and development in Boone and Story County, Iowa. Doctor of Philosophy dissertation, Iowa State University, Ames.

The purpose of this study was to determine the relevant educational program needs of the existing farming systems in Iowa, identify ways of improving them, and provide information as to farmers' perceptions about conducting farming systems research on integrated crop and livestock enterprises. The population for the study consisted of 1878 farm operators in Boone and Story counties of Iowa. A four-part questionnaire including a section on demographic data was developed for the study. The findings revealed that farm operators agreed with most of the farming systems research and development concepts. Most important were the need for collaboration between the farmers and the researchers, the need to involve farmers in policy issues, the need for conducting research on farmers' fields, and the need that research information be made available to farmers to help them in their day-to-day decision making. Farm operators in the study objected to the idea of subsidy, but encouraged the maintenance of small-scale farms. The major constraints identified were pricing of agricultural products and the effect of the size of operation negates maximization of profit.

Uzunlu, V. (1990). Assessing the impact of the extension training and visit system on the transfer of wheat technology to farmers in Ankara, Turkey. Master of Science thesis, Iowa State University, Ames.

The study quantitatively assessed farmer's adoption levels of recommended planting, tillage, and harvesting practices and identified their perceptions of Extension. The perceived quality of services received from Extension was greater after the implementation of the Training and Visit system. Respondents ranked Extension personnel as the most important source of information. Ninety-nine percent had planted high yielding wheat varieties. Fifty-nine percent of the recommended practices had been adopted. Expense and unavailability of inputs were the main reasons for non-adoption of recommended practices; however, a third of the farmers had applied more than the recommended amounts of fertilizer.

Whent, L. (1990). Experimental evaluation of an environmental conservation technology instructional unit. Doctor of Philosophy dissertation, Iowa State University, Ames.

The purpose of this study was to evaluate the effectiveness of an environmental conservation technology instructional unit. The effectiveness of the unit was measured in terms of high school student's

knowledge of environmental conservation technology, students' attitude toward natural resources, and teachers' attitudes toward natural resources and teaching environmental conservation technology.

An experimental pretest-posttest control group design was used in this study. The experimental group received the instructional unit and an in-service program; the control group received only a list of environmental conservation technology lesson titles and objectives to guide their teaching.

The findings revealed that the instructional unit and teacher in-service program were effective in increasing student knowledge of environmental conservation technology. Both the experimental and control groups increased their knowledge of technology for managing and conserving natural resources. Analyses of pretest and posttest scores within the two groups revealed that the experimental group significantly increased in knowledge of environmental conservation technology. Significant changes in attitudes were not observed between experimental and control groups, nor were significant changes observed within groups between pretest and posttest scores.

White, G. A. (1988). An evaluation of the 13th International Seminar for the Promotion of Rural Youth Work. Master of Science thesis, Iowa State University, Ames.

The purpose of this investigation was to assess the effectiveness of the 13th International Seminar for the Promotion of Rural Youth Work held in Herrshing, West Germany in satisfying its program objectives. The population of 80 seminar participants representing 41 different countries was surveyed by mail. Each participant was asked to respond to ten activities for each of four seminar objectives expressing the degree of effectiveness that the participant felt the activity was in helping them in their rural youth work. Questionnaires were developed in English, French, and German. For the seminar objective "broadening participants' understanding of rural youth problems in other countries," individual country reports, informal one-on-one sharing, and small group activities were most effective. For the objective "improving participants' planning and organizational skills," small group activities and planning a rural youth program were the most effective activities. For the seminar objective "improving effectiveness as a team member working on group projects," the most effective activities were: methods of directing creative group work and understanding social differences. For the fourth objective "assisting participants with rural youth work in their countries," the most effective activities were suggesting techniques that contribute to effective teamwork and contributing to the participants' effectiveness in youth work. Significant differences were observed among activity group means for each of the four objectives when the participants' responses were grouped by continent from which they originated.

Zidon, M. G. (1990). Computers in high school agriculture programs: A national study of need, use, and value. Doctoral dissertation, Iowa State University, Ames.

The study's objectives were also to determine the need for computers in high school agriculture classes, determine how they were being used, and determine the teacher's' perceived value of the effectiveness of using computers. Six hundred schools were randomly selected from a population of 9,093 high school agriculture departments in the United States.

The use of computers by agriculture teachers was still relatively new with the group mean being less that five years of computer experience. Teachers, where students did not use computers, were less likely to agree that students need to use computers. Computer programs most often used were work processing, educational games, and drill and practice programs. Computers were most used in crop and livestock production. Teachers were positive about the value of five selected types of software. They agreed that these programs were educational and motivational. They disagreed with the idea that computer programs waste time.

KANSAS

Welton, R. F., Harbstreit, S. R., & Parmley, J. P. (1990). Secondary agricultural education student awareness of international agriculture and factors influencing student awareness. (Staff Study). Kansas State University, Manhattan.

The major purpose of this study was to assess student awareness of international agriculture concepts and to determine any relationships that may exist between these concepts and selected student characteristics. The student variable included gender, year in school, grades, FFA membership, semesters as an agricultural education student and semesters in a SOE.

The target population consisted of students enrolled in secondary agricultural education programs in Kansas during the 1989-90 school year. An instrument consisting of multiple choice and completion items was designed to measure student awareness of international agriculture concepts. Data were collected from 1398 students in 33 programs. Statistical analyses of the data included frequency, percentages, means, correlation analysis of variance, and correlation coefficient.

The findings of this study were as follows: There were significant ($p<.001$) differences between student awareness scores of international agriculture concepts and GPA, year in school, semesters enrolled in agricultural education, and semesters of SOE.

MASSACHUSETTS

Thuemmel, W. L. (Ed.). (1990). It's your world: Learning activities for grades K-3. (Massachusetts Agriculture in the Classroom, Inc., Funded Project). Amherst: University of Massachusetts.

The purpose of this project was to develop a set of specific lessons or learning activities in science and nutrition and social studies for Massachusetts elementary teachers, grades K-3, to further agricultural literacy among their students.

The project was conducted as a result of joint planning by the project director and Massachusetts Agriculture in the Classroom (MAC), Inc. This effort was a sequel, and companion series, to It's your world: Learning activities for grades 4-6, which was developed by the same author in 1989. The learning activities are presented in a concise and active learning format. It's your world for grades K-3 contains 46 learning activities, 19 in science and nutrition and 27 in social studies.

The project director was assisted by two former elementary teachers who served as project specialists in developing the various learning activities. The lessons focus on agriculture and agricultural products from all geographic regions of Massachusetts and reflect a nationwide trend to include agriculture and agricultural issues in classroom instruction in a meaningful and integrative way.

The learning activities were designed to minimize the amount of teacher time required to prepare individual lessons. They are active in nature, flexible, and address major concepts in science and nutrition and social studies while creating an awareness of the food and fiber system. All materials were reviewed for content validity by agricultural industry representatives to ensure the activities accurately portrayed Massachusetts agriculture. The learning activities were printed and assembled in three-ring binders. Elementary teachers are introduced to the teaching materials through workshops sponsored by MAC, Inc.

MICHIGAN

Connors, J., Elliot, J., & Moore, E. (1990). Factors influencing secondary Michigan agriculture students about membership in the FFA. Michigan State University, East Lansing.

The purpose of this study was to determine whether four factors; finance, extra-curricular activities, peer pressure or place of residence, did or did not influence an agricultural student's decision about whether to join the FFA. The study also studied whether differences existed between various groups of students concerning why they did not join the FFA.

The population included 441 non-FFA member agricultural education students in Michigan. The survey instrument included 31 Likert style questions related to the four factors studied. Eight open-ended questions were also included to obtain the subjects' opinions on several topics related to the study. Data was analyzed using descriptive statistics, frequencies, percentages, means, and standard deviations. T-tests and analysis of variance were used to determine whether statistically significant differences existed between groups of students. Qualitative research methods were used to categorize responses to the eight open-ended research questions.

The findings of this study were as follows: (1) financial factors did not prevent a significant number of agricultural education students from joining the FFA; (2) time conflicts with other activities did not stop respondents from joining the FFA; (3) peer pressure from other students did not influence respondents' decisions not to join the FFA; (4) geographical factors did not prevent respondents from joining the FFA; (5) a statistically significant difference was found between males and females in how they responded to statements concerning the financial factors; (6) a statistically significant difference was found between rural farm students and those who did not live on a farm in how they responded to statements concerning financial variables; (7) a statistically significant difference was found between freshman and junior agricultural education students in how they responded to geographical variables.

Elliot, J. & O'Connell, T. (1990). Michigan agriscience and natural resources education: Delphi study on FFA issues. (Staff Study). Michigan State University, East Lansing.

The purpose of this study was to identify the dimensions and the attributes of the issues facing the FFA in Michigan. The first step of the Delphi process was to determine important issues facing the Michigan FFA. This step was accomplished by asking the teachers attending the spring curriculum inservices to complete a one page informational sheet. In addition to listing issues, the teachers nominated individuals they felt would be good candidates to participate in the Delphi study. Careful consideration was made to ensure that adequate representation

from the following groups occurred: current and past state FFA officers and members, teachers of agriscience and natural resources, counselors, administrators, parents, advisory board members, school board members, MSU personnel, MDE personnel, FFA Alumni members, and agricultural organization personnel. The respondents participated in a typical three stage Delphi process.

Leadership: Delphi participants strongly agreed that leadership contests are excellent motivational tools that develop life-long skills.

Curriculum/Students: Respondents are in agreement that skills contests should be related to the agriscience and natural resources curriculum. Respondents also agreed that activities/awards/etc. should be created for students enrolled at career centers and for non-farm students.

Supervised Experience: Participants agreed that supervised experience programs during the school year are to be encouraged.

Rituals/Dress Code: Respondents agreed that FFA degrees and proficiency awards must be modified to reflect agriscience and natural resources activities. Delphi participants also agreed that the FFA Creed must be revised to reflect today's agricultural society. Participants also stated that chapters should have the option to choose between wearing the FFA jacket or an FFA endorsed blazer as official dress. Respondents also agreed that a second class official dress consisting of an endorsed FFA polo shirt should be an option for leisure type chapter activities.

Elliot, J. & O'Connell, T. (1990). Michigan agriscience and natural resources education: cross-reference with the state's science objectives. (Staff Study). Michigan State University, East Lansing.

The purpose of this study was to determine the extent of science content within the Michigan Agriscience and Natural Resources Education Curriculum as measured by the state's science objectives. Four (one of each unit of curriculum) technical/advisory committees, consisting of university faculty, high school science and agricultural teachers, and business personnel, evaluated the curriculums' objectives and documented which ones would cross-reference with the state's science objectives.

The state's science objectives were listed in Essential Performance Objectives for Science Education: Grades K-9. The committees reviewed each curriculum document three times. At least three secondary agriscience educators field tested each lesson plan and documented the science content.

It was determined that the 91 Natural Resources objectives cross-referenced with 129 state science objectives, the 64 Plant Science objectives cross-referenced with the 99 state science objectives, and the 111 Animal Science objectives cross-referenced with 128 state science objectives. The Business Management and Marketing (BMM) curriculum unit had few objectives that cross-referenced with the

state's science objectives. It was recommended that the BMM not be listed as a science course.

Steeby, J. S. & Wamhoff, C. H. (1990). Development of a database on agricultural education programs in Michigan secondary schools: a pilot study. Master of Science plan B paper, Michigan State University, East Lansing.

The primary purpose of the project was to unite the data from disparate sources for planning cooperative activities and professional development programs. The population included all agricultural education programs in Michigan secondary schools from 1988-1989. A census of all agricultural education programs in Michigan secondary schools was completed, and records developed on all programs. Records included data on districts, program structure, program resources and educators. Software was used to incorporate date into an accessible format for planning purposes. A structure for on-going collection of data on programs was developed. Pilot tests were conducted to provide information from the database for planning purposes.

Biryabaho, F. M. (1990). Effectiveness of third party interviewers in indentifying farmers' needs for the purposes of extension program planning. Colloquium Paper, University of Minnesota, St. Paul.

The purpose of this study was to assess the effectiveness of third party interviewers when compared to extension personnel's perceptions in identifying farmers' needs for the purposes of extension program planning in Ihunga sub-county, Southwestern Uganda.

The target population consisted of farmers and agricultural extension agents in Ihunga sub-county, Uganda. Data was collected by direct interviews with 3 extension agents and with 28 farmers in three parishes in the summer of 1989. A semi-structured, open-ended questionnaire was developed by the researcher to describe and compare extension education needs as identified by extension personnel, third party interviewers and the researcher. Data was analyzed using frequency percentage and qualitative content analysis.

The findings of this study were as follows: (1) The needs identified by extension agents, relative to those identified by farmers, were centered around the more visible, market-oriented enterprises, (2) The number of farmers interviewed had little influence on the quality of information gathered, (3) The farmers' responses indicated a sense of powerlessness over the problems the farmers encountered and a feeling that solutions to these problems lay beyond the farmgate.

Boraas, T. A. (1990). Minnesota's farmer lender mediation program: an evaluation for Pope County Minnesota. Plan B Paper, Master of Arts,University of Minnesota, St. Paul.

The purpose was to compare and contrast the attitudes and perceptions of individuals and groups representing 5 different groups of residents on the mediation program within Pope County. These five groups represented individuals who had the opportunity to observe the Farmer`Lender Mediation Program, derive benefits or risk loss of resources as a result of the program, or individuals who are influential in shaping public opinion and values relating to the program. The study was also conducted to determine how effective the county extension office was in delivering the program and the impact it had on other extension services.

With the assistance of county extension staff the target audience was identified. Twenty-six individuals were selected and invited to be interviewed. These individuals represented five groups of citizens to be involved in the study: 1) Community leaders; 2) legal agents; 3) creditors; 4) farmers who have not participated in the mediation program; and 5) farmers who have participated in the mediation program. These individuals described experiences, opinions, and observations regarding the program. Their insights were used to develop five surveys which were sent to 236 county residents representing the five groups. After a follow-up with non-respondents, an overall response rate of 72

percent was achieved. Results were determined by computing the frequencies, means, and standard deviations for each variable. Cross tabulations were also run to compare response categories to specific factors.

The results indicate that communication between farmers in the mediation program and creditors has improved; some hard feelings exist between farmers who received debt restructuring through mediation and farmers not involved in mediation; the program helped keep farmers and their families on the farm; mediation prevented serious personal crises and very possibly prevented three suicides in Pope County. The majority of respondents gave a favorable rating to the program and felt it should be continued; respondents believed the Pope County Extension Office did a quality job in delivering the program and felt the Minnesota Extension Service should continue to coordinate the program. Respondents also expressed opinions that reflected differing values about the role of individuals and the government, the limited communication between residents, and a limited knowledge of the benefits and limitations of the program.

Boulton, R. P. (1990). Funding for displaced farmers seeking agriculture education degrees. Master of Education Paper, University of Minnesota, St. Paul.

The purpose of this study was to describe the education funding options available for any displaced farmer seeking to become an agriculture teacher while enrolled in the Department of Agriculture Education at the University of Minnesota.

The available sources of funding at the University for the 1989-1990 school year were described. Financial aid sources included grants, loans, scholarships, and federal and state aid. Steps for obtaining the various types of financial aid were described.

Data were collected through interviews with financial aid personnel, federal and state legislatures; from financial aid guides, bulletins, fact sheets and newsletters; and from federal and state job training programs personnel.

The main conclusion drawn was that displaced farmers can obtain funding to enter college, but it is very limited and potential support for additional funding is not apparent at this time.

Cubelo, E. C. (1990). A re-examination of farming system research. Plan B Paper, Master of Arts, University of Minnesota, St. Paul.

Since its emergence in the late 1970s, Farming Systems Research has been the subject of a plethora of publications and symposia detailing its conceptual formulations, methodologies, characteristics and ways of operationalization. Despite all of these, there remains

ambiguities in terms of its definition and focus. This lack of clarity has attracted criticisms of its potential to achieve its objectives.

The purpose of the study was to re-examine FSR literature in order to: 1) clarify FSR' focus, 2) to illustrate its operationalization, 3) to examine criticisms of FSR, and 4) to formulate suggestions for its improvement.

The data used in this study were obtained through a literature review of FSR definitions, theoretical underpinnings, characteristics, methodology, actual examples and criticisms. The paper begins by placing FSR in a historical context, then explores its theoretical underpinnings, presents examples of FSR operationalization, amalgamates criticisms of FSR, and finally after a discussion of some of the research questions, suggests ideas for its improvement.

In theory, FSR aims to increase the productivity of the small farmers through a two-pronged strategy: the development and dissemination of relevant agricultural technologies using a farm-based holistic approach (FSRE), and through influencing the development of favorable agricultural policies in support of its technological recommendations (FSIP). The literature suggests that FSR work has concentrated on the former and has yet to embark on the latter. This concentration on the technical aspect of production has resulted in criticisms about FSR's systems orientation, limited scope, and technological bias.

To maximize the potentials of FSR, the author suggested among others, the following: 1) a stronger and a more encompassing systems orientation, 2) a broader problem solving focus, 3) the enforcement of its multi-disciplinary and interdisciplinary nature, 4) increase collaboration with farmers during the entire process, 5) greater integration of FSRE with FSIP, 6) more human resource development, 7) institutionalization of FSRE as a complementary research strategy in developing a nation's agricultural sector.

Dzoboku, E. K. (1989). Agroforestry practice and extension program development guidelines for Ghana. Master of Education paper, University of Minnesota, St. Paul.

While agroforestry systems are being actively promoted in Ghana, the concept (tree and crop integration on the same land management unit) and the newly developed technologies are little understood and the Ghanian forestry field officers mostly depend on their agricultural counterparts for the extension work.

The paper purposes to fill the void by offering a broad overview of the agroforestry systems, their potentials and problems. In addition, it provided a reference guide for those who will be responsible for drawing forestry extension programs to reach out to farmers and any groups interested in agroforestry.

Based on literature review, the paper describes agroforestry practices in some tropical countries in Latin America, Asia and Africa. It also described the role of extension officers and outlined the

various steps in the extension program development process. A model agroforestry program designed for a forest district in Ghana was also provided.

The paper suggested that agroforestry systems have the potential to improve socio-economic conditions of rural inhabitants, improve land productivity and minimize land denudation. However, care must be taken to select the appropriate techniques and tree species that fit topographic conditions, land use, as well as the needs and interestes of the landowners. Similarly, the extension program must be based on situational analysis emphasizing local people's involvement in the program development and implementation process from needs assessment to project evaluation. Lastly, the paper stresses the integration of agroforestry practices and program implementation into rural development programs to ensure that resources are efficiently used and maximized.

Kieft, J. M. (1989). Motivation for initial and continued participation in the Minnesota Master Gardener program. Master of Art thesis, University of Minnesota, St. Paul.

Certified Master Gardners in Minnesota completed a questionnaire developed to determine (1) motivation factors for initial and continued participation in the Master Gardener program; (2) support needs expressed by the participants; and (3) selected characteristics of the Master Gardener participants.

A mail questionnaire collected data from 128 certified Master Gardeners in the spring of 1985. The information collected from the survey was analyzed using an IBM PC and Statpac data analysis program. Statistical analyses of the data included frequency, mean, median, mode, percentage, analysis of variance, and t-tests.

The survey found that Minnesota Master Gardeners are similar to other adult learners in that they have multiple reasons for participating in the program. The Master Gardeners surveyed in this study indicated that the main reason they initially participated and continued in the program was to learn new information and to learn more about gardening. The collected data was divided into three groups based on the number of years of participation in the Master Gardener program to see if the length of participation had any influence on the motivational factors. No statistically significant differences at $p=<.05$ were found.

Overall, the Master Gardeners were satisfied with the program but felt that they needed additional types of support from program administrators and county agents such as leaflets and publications, frequent newsletters, and frequent refresher courses. This paper suggests some programmatic changes that could be made to increase continued participation, effectiveness, and participant satisfaction. The demographic characteristics illustrated that the participants in the Master Gardener program come from a variety of educational, economic, and employment situations and ranged in age from 24 to 80 years.

Lake, R. W. (1989). Agricultural independent study. Master of Education paper, University of Minnesota, St. Paul.

The purpose of this study was to examine Independent School District No. 1's vocational agricultural department's agricultural independent study program.

The context and evolution of the independent study course were described. Thirty-four students were interviewed.

The school district's need for an independent study course, its implementation, and the current program structure were examined.

Major benefits identified for the agricultural independent study were a) student flexibility in expanding their agricultural education opportunities, b) opportunities for students with special needs, c) a catalyst for the modifications of regular course work, and d) improved images of the agricultural education program as part of the school team.

Troendle, F. J. (1989). Using modified focus group interviewing techniques to obtain community information for an agriculture education program. Master of Education Paper. University of Minnesota, St. Paul.

The central focus of this paper was to determine if there was a more effective way of obtaining community input to guide a secondary and adult agriculture education program other than through a citizens advisory council. The two specific objectives were (1) to assess the type of information available from an advisory council and it's usefulness in giving future direction to an agriculture education program, and (2) to assess the type of information modified focus group interviews would yield.

To evaluate the advisory council's effectiveness in gathering community input to direct secondary and adult agriculture education programs, a review of the minutes of the past four St. Charles, Minnesota Agriculture Advisory Council meetings was conducted. The time involved with each of the council's various activities was estimated based on the meeting minutes. The minutes also provided an accurate accounting of the number of community members involved. To evaluate the focus group interview effectiveness in gathering community input to direct secondary and adult agriculture education programs, five community members were chosen and trained as moderators to each conductan interview. Each modified group interview stressed key aspects of agricultural education in the community. Each moderator selected four other community members to be involved using criteria to represent the community. Separately, each moderator conducted a modified focus group interview at their home or place of business. All interviews were taped in addition to the moderator taking written notes. The information was then analyzed for common perceptions among the participants.

The findings and conclusions of this study clearly illustrated that the type of information from citizen advisory council meetings is

useful, but is very general in nature. The council meetings analyzed appeared to be a time when the teacher is telling and informing rather than giving full attention to listening. Focus group interviews provided a broad, clear, unbiased view of community opinion and ideas about the direction of the agriculture education program. In the focus group interviews, statements and opinions were expressed that likely would not have been made in the presence of a teacher or school official. The modified focus group interview was a low cost and effective means of gathering open, unbiased community input.

Vreyens, J. R. (1989). The potential role of cooperatives in African development. Master of Education thesis, University of Minnesota, St. Paul.

This paper examined the relationship between cooperative philosophy and African development expounded in the Organization of African Unity's Lagos Plan of Action and the United Nations' Economic Commission for Africa Plan.

A summary of the philosophy of socio-economic development and goals espoused by the two African organizations was presented. This was followed by a brief review of the 145 year development of the cooperative philosophy which has resulted in the evolution of six major principles adhered to by U.S. cooperatives today.

An analysis was completed that described the indigenous types of cooperatives which exist in Africa; how Africans, frequently labeled subsistence farmers, do show market-oriented behavior; and why cooperatives have been inadvertently labeled inappropriate for Africa. The thesis is that a cooperative, if established using the six principles, can result in participatory, socio-economic development on the continent of Africa as described in the Organization of African Unity's and the United Nations' Economic Commission for Africa's twenty year plans.

Zylstra, M. L. (1990). Impacts of participating in the dairy termination program on farm families. University of Minnesota, St. Paul.

The purpose of this study was to analyze the impact of removal of the dairy enterprise from the farming system. The primary objective was to investigate how the family is affected when a subsystem is removed from the farming system.

The participants in the study were eight dairy farm families residing in Nobles County, who had their bids accepted by the United States Department of Agriculture for the Dairy Termination Program.

An interview guide was developed as a tool to obtain the thoughts and feelings of the eight farm families. Interviewing also allowed observation of the non-verbal.

The major conclusion of this study was that the farm families had a sense of loss and guilt when the dairy herd was removed from the farming system. A significant psychological adjustment was necessary in most families. The common benefits experienced by the family were additional time and the flexibility to participate in off-farm activities.

MISSISSIPPI

Chizari, M. (1990). An examination of adult education in agriculture in the southern region of the United States by the use of the delphi technique. Doctor of Philosophy dissertation, Mississippi State University, Mississippi State, Mississippi.

The purpose of this study was to determine the views of secondary agriculture teachers regarding the: (1) critical educational needs of adults involved in agricultural production, (b) major obstacles hampering secondary agriculture teachers in development and delivery of adult education programs, and (c) support needed by teachers in conducting effective adult education programs. State supervisors of agricultural education from 13 Southern states were used as third parties to nominate five secondary agriculture teachers who have outstanding adult/young farmer education programs to serve on the panel of experts.

A three round Delphi procedure was used to conduct this study. Round one consisted of an open-ended questionnaire. A response of 55 (85%) was achieved. Responses gathered from round one were converged and incorporated into the round two instrument. Twenty-two critical educational needs were collected in round one. Frequencies, percentages, and ranks were used to analyze all three rounds. Consensus was achieved for 15 of these in round three. The most frequently agreed upon need was "marketing agricultural products for maximum profit" with 48 (88.9%) members reporting this. Twenty-five major obstacles were collected in round one. Consensus was reached for six in round three. Forty-two (77.8%) panel members agreed that "a lack of time" is the major obstacle hampering the conduct of adult programs. Seven types of support needed were collected in round one, and consensus was reached for each. Eighteen sources of support were collected in round one. Consensus was reached for 15 of these. Forty-six (85.2%) members of the panel of experts stated that the support of "agricultural businesses" was needed. Secondary agriculture teachers need support from various organizations and businesses in conducting adult education programs.

Foshee III, W. G. (1989). A study of interests, educational needs, and preferred delivery methods among farmers in relation to alternative enterprises in Choctaw County, Alabama. Master of Science thesis, Mississippi State University, Mississippi State, Mississippi.

This study was to determine the interests, education needs, desired delivery methods, and demographic relationships among farmers in Choctaw County, Alabama in regards to adopting an alternative enterprise.

Analysis showed that the top five selected alternative enterprises were: catfish, vegetables, fee hunting, wildlife leasing and peaches. A combination of production, market, labor, and budget information was

most needed. Preferred delivery method was one-on-one contact with the county agent.

Over half of respondents were interested in adopting an alternative enterprise.

A positive correlation existed between farm size and interest in wildlife leasing. Positive relationships existed when income level and farm size were compared to the need for all available educational information.

Age was negatively correlated to receiving information from county agent, Extension specialist, newsletter, and publication. Educational level was negatively correlated to receiving information from publications.

Johnson, D. M. & Fletcher, W. E. (1989). Agricultural mechanics safety practices, equipment and instruction in Mississippi secondary agriculture programs. (Staff Study). Mississippi State University, Mississippi State, Mississippi.

The purpose of this study was to examine agricultural mechanics safety practices, equipment and instruction in Mississippi secondary agricultural education programs. The study was a descriptive study using mailed survey instruments.

The population for the study included all secondary production agriculture and agricultural mechanics instructors employed in Mississippi for the 1989-1990 school year (N=134). The entire population was surveyed and a 63% response rate was obtained (n=85).

Requiring students to successfully complete safety exams (92.9%) was the most commonly reported safety practice, while the provision of non-skid floor surfaces around power tools (4.7%) was the most commonly reported practice. Fire extinguishers (97.6%) were the most frequently reported safety or emergency equipment item. Fire blankets (2.4%) were the least frequently reported item.

The respondents reported devoting an average of 17.2% (S.D.=14.3%) of the instructional time in agricultural mechanics to teaching safety. On average, safety was taught as a separate instructional unit 32.4% (S.D.= 23.0%) of the time while being integrated into technical subject matter units 67.6% (S.D.=23.0%) of the time.

As a result of this study, it was concluded that unsafe conditions exist in many Mississippi secondary agricultural mechanics laboratories.

Recommendations included provision of safety inservice programs, increased emphasis on safety during local program visits and an examination of preservice agricultural education programs. In addition, it was recommended that money should be earmarked for the purchase of safety equipment and that a model agricultural mechanics laboratory should be developed. Finally, it was recommended that additional research should be conducted to determine factors that prevent teachers from using recommended safety practices and equipment.

Johnson, D. M. (1990). An evaluation of student achievement and factors related to achievement in the 1990 Mississippi State FFA Agricultural Mechanics Contest. (Staff Study). Mississippi State University, Mississippi State, Mississippi.

The purpose of this study was to describe student achievement and factors related to achievement in the 1990 Mississippi State FFA Agricultural Mechanics Contest. The study was descriptive and correlational in nature.

The population included all students participating in the 1990 Mississippi State FFA Agricultural Mechanics Contest (N=27).

The typical contestant was male (100%), 18 years old (36%), and did not live or work on a farm (56%). The contestants had completed an average of 2.84 (S.D.=.94) years of agricultural education with an average grade of 3.64 (S.D.=.49) on a 4.0 scale. The contestants had also completed average of 2.88 (S.D.=.78) years of mathematics with an average grade of 2.50 (S.D.=.86) on a 4.0 scale.

The mean total contest score was 56.93 points (37.95%) out of the 150 points possible. Total contest scores ranged from a low of 32 (21.33%) to a high of 78 (52.0%). Contestants scored highest on the skill activity of setting a clock timer (11.67/15; 77.8%) while scoring lowest on the problem solving activity of calculating concrete yardage (.52/10; 5.2%).

The demographic variables of grade level, average grade in agriculture, number of years of mathematics completed, average grade in mathematics, and farm residence and/or work experience had a significant (p .05) positive correlation with total contest score. Age and number of years of agricultural education completed were not significantly related to total contest score.

Stepwise regression analysis revealed that a linear combination of two variables, average grade in agriculture and farm residence and/or work experience, explained 42% of the total contest score variance.

Newman, M. E. (1990). Reader opinions of the Journal of Agricultural Education. Mississippi State University, Mississippi State, Mississippi.

In 1982, Williams conducted an evaluation of The Journal of the American Association of Teacher Educators in Agriculture by enclosing a survey instrument in a single issue of the Journal. In 1990, this researcher conducted an evaluation to determine AATEA members' opinions about the effectiveness, policies, and quality of the Journal of Agricultural Education.

The five most frequently indicated uses of the Journal were: (a) cited an article from the Journal; (b) shared an article with a colleague; (c) used the article in a graduate class; (d) used an article to learn research methodology; and, (e) used an article in a research class.

Respondents felt that research in agricultural education should get the most space in the Journal, followed by current trends and issues, descriptions/analyses of innovation, philosophical concerns, and evaluations.

When asked how the Journal could be improved, the most frequently occurring response (10) was by publishing more articles per issue and/or more issues per year.

The Journal is read by a variety of AATEA members. They think the Journal should advertise. The present format, length of articles, quality of articles, and problems addressed by the articles in the Journal are satisfactory to readers. The readers feel that the Journal fills a need of the agricultural education profession.

MISSOURI

Birkenholz, R. J. & Maricle, G. L. (1990). National survey of adult education in agriculture (project final report). (Staff Study). University of Missouri, Columbia.

The purpose of this study was to collect data needed to assess the status of adult education in agriculture in the United States. State supervisory personnel and agricultural teacher educators were surveyed to ascertain their perceptions of adult education programs in their respective states. Additional information was collected to identify trends which may affect the National Young Farmer Education Association.

The population for this study included the directors of agricultural education and head agricultural teacher educators from each state. A mailed survey instrument was developed and sent to each person identified in the population of 52 state supervisors and 51 teacher educators.

The following conclusions were drawn as a result of this study: (1) Adult education is an important component of agricultural education. (2) Most adult education programs are supervised by teachers who are not full-time adult agricultural educators. (3) There is a wide variety of funding support for adult agricultural education programs. (4) Courses in adult education should be required in preservice agricultural teacher education programs. (5) Each state should be encouraged to organize an affiliate of the National Young Farmer Education Association. (6) Membership in the National Young Farmer Education Association is expected to increase slightly over the next five years. (7) State leaders should be encouraged to commit staff time to administer the Young Farmer program. (8) Inservice workshops should be conducted to encourage teachers to provide adult instruction in agriculture and supervise Young Farmer programs. (9) State and national leaders should investigate ways to work cooperatively with local organizations in developing the leadership skills of adults in agriculture.

Eulinger, K. E. (1990). Factors influencing the instructional content of secondary agriculture programs in Missouri. Doctoral dissertation, University of Missouri, Columbia.

The purpose of this study was to identify the instructional units taught in secondary agriculture programs, to ascertain the number of class periods spent teaching each unit, and to examine factors influencing the selection of units.

The population included secondary instructors in Missouri with more than two years of teaching experience during the 1989-90 school year. All 197 schools in which programs and instructors met the stated criteria were included in the population. Respondents were asked to identify units taught and number of periods of instruction for each unit.

Frequency, means, and standard deviations were calculated for units in 14 agriculture courses. Null hypothesis one was not rejected (.05 level). No variable or combination of variables were found which could explain a significant portion of variance in the number of days that Agricultural Science I and Agricultural Science II were taught. Null hypothesis two was rejected (.05 level). Stepwise regression analysis indicated that a linear combination of variable explained a significant portion of the variance in the number of days that selected advanced agriculture courses were taught.

The following conclusions were formulated: (a) Agricultural Science I and Agricultural Science II tend to be taught in secondary agriculture programs in Missouri. (b) Agricultural Construction is taught in most secondary agriculture programs in Missouri and other advanced courses taught most often are Agricultural Management and Economics, Agricultural Structures, Advanced Livestock Production, and Agricultural Power I. (c) Although four variables accounted for a statistically significant amount of variance in offering advanced courses, the variance accounted for was judged to be of little practical significance to program planners.

Stewart, B. R. & Birkenholz, R. J. (1990). Outcomes of changing supervised agricultural experience programs. (Staff Study). University of Missouri, Columbia.

The purpose of this study was to assess the status of supervised experience programs of secondary agriculture student sin the state of Missouri. Data was gathered from state reports completed by secondary agriculture teachers, following the 1982-83 and 1987-88 school years. Additional data relative to the perceptions of agriculture teachers regarding characteristics of successful SAE programs were collected from 204 teachers who attended inservice workshops during October, 1989.

As A result of this study, it was reported that secondary agriculture teachers in Missouri have emphasized supervised experience programs as an integral component of the agriculture program. Missouri students participation in supervised experience programs increased between the 1982-83 and the 1987-88 school years. During that time, the number of programs in agribusiness and production placement surpassed the number of ownership programs. In addition, the number of Missouri secondary agriculture students who conducted both ownership and placement experience programs nearly doubled during the five-year period.

An examination of the characteristics rated highest by teachers related to work habits, responsibility, and needs of the student as contrasted to characteristics relating to scope and income.

Many of the students enrolled in secondary agriculture programs have limited opportunities to become involved in productive enterprises. Greenhouses and school farms have been used to provide opportunities for student experience programs which would not be possible in the home environment.

The types of experience programs conducted by students will likely continue to change as the student population changes. Experience programs should remain a strong and viable component of agricultural education.

Timko, J. J. (1990). Educational needs of international graduate students as perceived by University of Missouri, Columbia graduate faculty members. Doctoral dissertation, University of Missouri, Columbia.

The purpose of this study was to assess the importance and the satisfaction of selected curricular, research, and academic advisement needs of international graduate students as perceived by graduate faculty members in the University of Missouri-Columbia Colleges of Agriculture and Education. Differences in perceptions between the selected colleges as well as characteristics which influenced perceptions of the needs were analyzed.

Graduate faculty members were randomly selected to respond to a questionnaire developed for the study. Chronbach's alpha was used to estimate instrument reliability. Hypotheses were tested using mean calculations and multiple analysis of variance procedures.

Curricular and research needs were perceived as most important in agriculture and curricular needs were perceived as most important in education. Curricular needs were perceived as least satisfied in both colleges.

Significant differences in perceptions were found between the colleges regarding the importance and the satisfaction of the needs. Perceptions in regard to the importance of the research needs were found to differ significantly between the colleges. The research needs were perceived as being more important in agriculture.

Perceptions held by agriculture and education graduate faculty graduate students (a) differ in regard to the importance and the satisfaction of the needs: (b) differ in that the needs pertaining to research are more important in agriculture; and (c) are not affected by involvement with international graduate students and international experience.

NEBRASKA

Barret, L. R. (1990). Impact of a sustained three-year program of inservice on teacher effectiveness using knowledge of teaching and learning styles, classroom environment and observational feedback. (Staff Study). University of Nebraska, Lincoln.

A central focus of this project was to determine if teaching effectiveness of vocational teachers could be improved through systematic, long-term inservice education.

Participants in the project were experienced vocational teachers from seven high schools in Nebraska. They were teachers of agriculture, industrial education, home economics, and business.

Schools were assigned to three groups: experimental, medium treatment, and control. Over a three year period, the experimental group of teachers received in-depth inservice eduction on how to improve their teaching effectiveness through the application of knowledge in teaching/learning styles, analysis of classroom environments and observational feedback data. Three instruments were used to collect data: Myers-Briggs Type Indicator Form G, Stern's Classroom Environmental Index and the COKER (Classroom Observations Keyed for Effectiveness Research).

The experimental group of teachers scored significantly higher on eleven of 24 teaching effectiveness competences; the medium treatment group scored higher on three competencies and the control group did not score high on any competency, this indicating that the inservice treatment had a positive effect in changing teacher effectiveness behaviors.

NEW MEXICO

Blackwell, L. (1990). New Mexico state 4-H youth leadership project: Relationships between elements of leadership participation and self-esteem. Master of Arts thesis, New Mexico State University, Las Cruces.

The purpose of this study was to explore relationships between elements of 4-H leadership participation (i.e., 4-H leadership skill gain and frequency of participation in 4-H leadership activities) and self-esteem.

A random sample of 418 subjects was selected from the population of 2,281 senior 4-H members in New Mexico. A descriptive mail survey was developed, content and construct validated, and pretested utilizing 31 senior 4-H members who were not part of the sample. The survey contained the Rosenberg Self-Esteem Inventory, a composite scale for measuring 4-H leadership skill gain, and a composite scale for determining frequency of participation in 4-H leadership activities. Lack of a comparison of data from early and late respondents is a limitation to generalizability.

A significant relationship was found between 4-H leadership skill gain and self esteem for the senior 4-H members ($p<.05$). Frequency of participation in 4-H leadership activities and self-esteem were also significantly related ($p<.05$). Native American senior 4-H members had significantly less 4-H leadership skill gain than both Anglo and Hispanic members ($p<.05$). Native American members also had a significantly lower frequency of participation in 4-H leadership activities than Anglo members ($p<.05$).

Although caution is recommended when generalizing results to all senior 4-H members in New Mexico, the results suggest that elements of 4-H leadership participation are related to self esteem among New Mexico senior 4-H members. The results also suggest that 4-H should evaluate its programming for Native American members. New strategies to recruit and increase the participation and leadership development of Native American members could be developed and implemented. Further research is needed to determine 4-H programming that would achieve these goals with Native American youth.

Caeiro, R. E. (1989). Inservice technical subject matter training needs of New Mexico agricultural extension agents. Master of Arts thesis, New Mexico State University, Las Cruces.

The purpose of this study was to identify the technical subject matter inservice training needs for New Mexico agricultural extension agents. Specifically, inservice training needs were ranked.

The population for the study was 33 New Mexico county agricultural extension agents. A census of all 33 agents was taken utilizing a descriptive survey. The mail survey contained 109 pairs of indicators corresponding to 109 technical subject matter inservice training needs.

Each pair contained an indicator of perceived importance and an indicator of perceived level of technical competency. Discrepancy scores between perceived importance and perceived level of technical competency were calculated for each pair of indicators and used as a basis for prioritizing the technical subject matter inservice training needs.

Marketing issues received the highest rankings among technical subject matter inservice training needs for the agents. Needs associated with crop management (i.e., control of weeds, identification and control of insects, and crop diseases) and new and high value crops also received high rankings.

Results of this study should serve to guide, in part, long-term technical subject matter inservice training programs for agricultural extension agents in New Mexico.

NEW YORK

Feagles, G. E. (1990). The role of mentoring within cooperative extension: The 4-H youth development program. Master of Professional Studies Project Report, Cornell University, Ithaca.

The mentoring concept is becoming more prominent in the United State; numerous mentoring programs are developing in communities across the country. This project investigates the role of mentoring as it pertains to non-parent adults and youth, and attempts to determine the roles youth mentoring have within the Cornell Cooperative Extension 4-H Program.

In our rapidly changing society, young people face constant pressures arising from such critical issues as suicide, teen pregnancy, drug and alcohol abuse, and school dropouts rates. Community youth mentoring programs may have the potential to alleviate these stresses among our youth.

Project Objectives:

1) To further define the mentoring concept in terms of non-parent adult and adolescents.
2) To define some characteristics of successful mentoring pairs.
3) To further investigate possible applications of mentoring within 4-H Youth Development Programs.

Project Procedures:

1) Case studies were conducted to collect data from mentoring pairs participating in the Cornell University sponsored "Linking Up" youth mentoring program.
2) Information on current implementation and management practices for youth mentoring programs was collected from the New York State Mentoring Program.

This project evaluated three possible applications to 4-H Youth.

Development Programs:

1) Develop, implement and manage youth mentoring programs within the 4-H Youth Development Program.
2) Apply mentoring concepts to existing programs (i.e., 4-H club management, volunteer training, and career exploration programs).
3) Share current resources and knowledge of mentoring with existing community youth mentoring programs.

This evaluation revealed that the most effective utilization of mentoring within 4-H involves incorporating mentoring concepts into existing 4-H programs instead of creating separate programs entitled mentoring. A second application includes networking with established community mentoring programs to provide several strong programs instead of numerous ineffective ones.

Educators may find this information helpful for the development, implementation and management of youth mentoring programs. In addition, the findings and recommendations from this project may be applied to existing community youth development programs such as 4-H.

Fuata'i, L. I. (1990). Philosophy and guidelines: Teacher education in Agriculture in the South Pacific. Doctoral dissertation, Cornell University, Ithaca.

The purposes of this study were (1) to articulate a philosophy of teacher education in agriculture that reflects the values and beliefs of agricultural education leaders in the South Pacific, and (2) to develop guidelines for teacher education in agriculture at the University of the South Pacific.

The study was conducted in the Cook Islands, the Republic of Fiji, the Solomon Islands, the Kingdom of Tonga, Vanuatu, and Western Samoa. The target population of leaders in agricultural education consisted of Ministers/Directors of Education and/or their Senior Education Officers, and employed teachers of agriculture who were trained at the USP. Responses were also elicited from expatriates who were involved with the teacher education in agriculture program at USP, but their results were used for comparison purposes only.

Eleven areas of teacher education pertinent to the South Pacific region were examined to achieve the aforesaid purposed. These were recruiting, curriculum, student teaching, student personnel services, public relations, instructional materials, research in teacher education in agriculture, staff development of teacher educators, inservice teacher training, purpose of teacher education in agriculture, and evaluation.

A two-part questionnaire, consisting of 49 philosophic statements in part 1 and 45 guideline statements in part 2, was administered. Respondents were also interviewed on site. Weighted means were used to analyze the degree of aggreement/disagreement of respondents with each statement in part 1 based on a Likert scale of 5. Descriptive statistics were used to analyze part 2, the items of which required checking.

The weighted means and descriptive statistics showed that agricultural education leaders favorably endorsed the philosophic and guideline statements proposed. Comparatively, expatriates were similarly inclined. The study concludes with a statement of philosophy and a set of guidelines as endorsed by the South Pacific respondents. Implications and recommendations for further research are also included.

Kitts, R. J. (1990). Youth activities in the vegetable garden: Leader guide. Master of Professional Studies Project Report, Cornell University, Ithaca.

Youth Activities In The Vegetable Garden: Leader Guide has been written to be used with 4-H and FFA vegetable production projects and the training of volunteer leaders assisting with these projects.

It is hoped this guide will help leaders to assist and educate those members developing successful home vegetable marketing projects.

The materials included in this curriculum package are designed for beginning or novice 4-H/FFA Gardeners. It is intended, that Youth Activities In The Vegetable Garden: Leader Guide will serve as a supplement to 4-H, vocational agriculture, and middle school science class gardening or plant science activities.

This guide is a consolidation of existing 4-H, FFA, and Vocational Agriculture classroom teaching materials. These learning activities, teaching strategies, and references are to provide a starting point for leaders working to help the participating youth to explore career opportunities, develop technical and life-long learning skills through vegetable gardening.

Parapi, A. C. (1990). Broiler production - teacher's guide. Master of Professional Studies Project Report, Field of Education, Cornell University, Ithaca.

Adequate government technical bulletins and other publications are available to teachers of agriculture in secondary schools, but few are "teacher friendly" to assist teachers to effectively discharge their teaching obligations.

The main objective of this curriculum package on broiler production is to produce a teacher friendly publication for use by agriculture teachers at grades nine and ten in secondary schools in Papua, New Guinea.

Papua, New Guinea (PNG) is a developing country in the South Pacific Region. The country has an estimated population of about 3.5 million people with over 80 percent engaged in agriculture and related activities. The curriculum package was designed and developed consistent with the national goals in the secondary school agricultural curriculum.

The need for this teacher's guide was reached after examination of the teaching aids available in Papua, New Guinea and those available from the Instructional Materials Service of the Department of Education, Cornell University.

The teacher's guide consists of three main parts: the origin, species, and anatomy of chickens; the managerial aspects of broiler chickens from day one to marketable age; and record keeping and marketing for a broiler chicken project.

The three main parts contain eleven units. Each unit consists of the following components: unit name/title; unit overview; objective(s);

materials; content; teaching strategies (i.e., motivation, presentation and closure); test/quizzes/exercises/worksheets; and answers where applicable.

A vocabulary list containing terms used in the publication is also included at the end of the curriculum package.

NORTH CAROLINA

North Carolina A&T State University, Greensboro

Aiyeru, S. B. (1990). Attitudes of high school vocational students towards the use of microcomputers in two selected schools in Guilford county, North Carolina. Master of Science thesis, North Carolina A&T State University, Greensboro.

The purpose of this study was to identify, analyze, and compare the attitudes of vocational education students toward the use of microcomputers. The objective of the study was to determine if there are differences in the attitudes of students toward microcomputers concerning selected variables, i.e., gender, length of exposure, parents'' interest in microcomputer, and grade level.

Two schools were randomly selected and two vocational teachers from the two schools were randomly selected in Guilford County North Carolina. All students of the two teachers were surveyed.

The instrument used for this study was called "Computers and Robots Attitude Questionnaire (CARAQ)". The instrument was developed by Moore (1985). The instruments were hand delivered to the teachers and picked up upon completion. The data was collected during the Spring of 1989.

The method of data analysis were cross-tabulation and Chi-square test of independence. The Chi-square test was used in the data analysis since the data to be analyzed for each hypothesis is categorical.

The following is a summary of the findings and conclusions:

1. There was a difference in the attitudes of male and female vocational students toward microcomputers. Males have more positive attitudes toward microcomputers than females.
2. There was a difference with reference to length of exposure to microcomputers. As exposure increased the attitudes of the students became more positive until after a time (2-3 years).
3. There was a difference concerning their parental interest in microcomputers. The interest of the students was independent of their parents' interest.
4. There was no difference in the attitudes of vocational education students towards microcomputers across grade-level.

Okafor, E. A. (1990). The effects of molybdenum, rhizobium-inoculum and lime on alfalfa (Medicago sativa L.) shoot yield and nodule weight and total shoot nitrogen content. Master of Science thesis, North Carolina A&T State University, Greensboro.

In the United States acid soils create problems for alfalfa farmers. There is also molybdenum deficiency. Literature indicates that molybdenum and pH play a dominant role in alfalfa production. Therefore, a greenhouse experiment was conducted to study the

interactive effects of molybdenum, Rhizobium-inoculum and lime on alfalfa growth in Piedmont soil.

The primary research hypothesis was that there is no positive relationship between the level of soil pH and/or rate of plant available molybdenum and shoot nitrogen content and yields of alfalfa.

The experiment included one alfalfa cultivar and one soil type. Complete random design was used with a total of 72 pots. In the statistical analysis three independent factors were involved; three levels of molybdenum, two levels of inoculum, and two levels of pH. Each treatment was replicated six times. Two harvests were made at three and six months intervals.

Second harvest data on nodule formation, root, and forage yields including total shoot nitrogen content were collected and analyzed using Pearson correlation coefficients; there was a significant ($p>0.0057$) positive relationship between total shoot N content and nodule formation, nodulation and molybdenum ($p>0.0115$), dry matter weight and pH ($p>0.0001$).

The application of 0.30g Mo kg-1 soil at pH 8.3 produced a highly significant increase in total dry matter yield with a 49.20% increase in total shoot nitrogen. Also nodule yield nearly doubled (94.18%) compared with corresponding yields from plants grown at pH 6.5 without molybdenum. At pH 8.3, the application of 0.30g Mo kg-1 soil resulted in a nodule dry weight, root dry weight, dry matter weight and total shoot nitrogen of 0.71g/pot, 49.93g/pot, 47.75g/pot and 969.85ug/pot, respectively, compared with corresponding values of 0.44g, 46.06g and 925.95ug for plants grown without Mo. The observed growth response to high pH was mainly due to the increases in plant-available molybdenum in the soil which increased the nodule efficiency.

Therefore, one of the writer's main recommendations is that in cases where molybdenum deficiency is the major growth limiting factor, the application of molybdenum to well-nodulated but nitrogen-limited alfalfa plants should be a good alternative for increasing forage production.

Walson, F. O. & Bell, A. P. (1990). Assessment of educational and employment opportunities in agriculture for limited resource rural North Carolinians. (Staff Study). North Carolina A&T State University, Greensboro.

The primary purpose of this study was to determine the educational and employment opportunities for rural youth and adults interested in agriculture and related occupations and to make recommendations for the development of appropriate agricultural education curriculum materials for training high school students in North Carolina. To achieve this purpose, five objective were developed.

Questionnaires were developed for seven groups of respondents which included limited resource farmers, agriculture teachers, extension agents, educational administrators, students, agribusiness employers and employees. Pretest was carried out to establish validity and

reliability of the instrument. Ninety-five percent reliability was obtained. Data were collected from 1,085 respondents. Statistical analyses of the data included measures of central tendency and descriptive statistics.

The major findings were as follows:

1. Most rural youth and adults lack adequate knowledge and training in agricultural occupations and related areas.
2. Curriculum materials were inadequate in providing current information and knowledge in agriculture to high school students for gainful employment.
3. Most rural youths and adults were unaware of the educational and employment opportunities in agriculture.
4. A majority of agribusiness employers were dissatisfied with the level of education, training, performance, and availability of well-trained employees in agriculture and related areas.
5. Most high school students enrolled in agriculture would not pursue agriculture in college.
6. Most students enrolled in agriculture in high schools plan to use their knowledge of agriculture for hobby purposes rather than as a means to life career.

The writers recommend: (1) That appropriate curriculum materials be developed for continuous training of rural youths and adults in high schools interested in Agricultural and related occupations. (2) That teachers of Agriculture in high schools should place more emphasis on teaching Agricultural and related occupations.

North Carolina State University, Raleigh

Browning, E. M. (1990). Perceptions of horticultural professionals and agriculture teachers regarding the importance of computer skills for entry level employment in horticulture in North Carolina. Masters thesis under the direction of Dr. Barbara M. Kirby. North Carolina State University, Raleigh.

The purpose of the study was to determine current and future instructional computer skills needed by students for entry employment in horticulture in North Carolina. A random sample (n=113) of all 1989-90 horticulture teachers in North Carolina (N=161) was selected for the study. An expert panel selected 17 leading Horticulture businesses as a purpose samples.

The two-part, researcher developed instruments were distributed via mail survey. After utilizing a three stage follow-up procedure, teachers returned 89 (71.2%) and employers 88% usable instruments.

Descriptive statistics were used in describing the data. Pearson's product moment correlation coefficient was used to determine if there were any relationships between selected demographic variables and the importance of teaching computer competencies.

No significant relationships were found between teaching experience or computer education and the teacher's perceptions of the importance of teaching computer skills. Teaching basic skills was rated

moderately to very important, while using a data base, a mailing list, a word processor, or greenhouse controls were all rated as moderately important. Using computers to obtain market information was rated as more important by employers than by teachers for entry employment in horticulture. Teachers and employers ranked the order of importance of skills differently.

Kirby, B. M. (1990). Attitudes, knowledge, and implementation of biotechnology by North Carolina agriculture teachers. Funded study. North Carolina State University, Raleigh.

The purpose of the study was to describe teachers' attitudes, knowledge, and strategies for using biotechnology content as their curricula. The population (N=355) included the 1989-90 vocational agriculture teachers in North Carolina and a random sample (n=186) was selected. The data collection instrument was developed by the North Carolina Biotechnology Center and the North Carolina Extension Service. After utilizing a three stage follow-up procedure, a total of 162 (87%) instruments were returned. Descriptive statistics were used to describe the study population. Pearson's Product Moment Correlation was used to determine if any relationships between selected demographic variables and attitudes, knowledge level, and strategies existed.

Findings of the study revealed that: (a) only low to negligible relationships existed between selected demographic characteristics of the teachers and their level of biotechnology awareness, (b) teachers obtain most of their knowledge about new technology by reading professional journals, (c) teachers consider genetic engineering as desirable, (d) teachers have a moderate amount of awareness and understanding of biotechnology products or processes, the basic science underlying biotechnology, the benefits and risks, and social issues and public concerns, and (f) a positive, low correlation existed between numbers of workshops and teachers' awareness of biotechnology (r=.21).

Price, L. E. (1990). Attitudes of school administrators in the Southern Region of the United States toward agriculture education. (Under the direction of Dr. Larry R. Jewell).

The purpose of this study was to determine the attitudes of school administrators toward vocational agriculture education and toward recommendations for vocational agriculture education from the National Assessment of Vocational Education and from Understanding Agriculture: New Directions for Education. The study also measured the relationships between experience in vocational education as a student and/or teacher and attitudes toward vocational agriculture education or recommendations from the national studies. The administrators were asked to indicate their attitudes through a written survey. The research sample consisted

of 350 principals, 303 superintendents, and 297 vocational education directors. A 72% response rate was obtained.

School administrators as a group are supportive of vocational agriculture and the recommendations from the two national studies for vocational agriculture education reform. Significant differences were found to exist among principals, superintendents, and vocational education directors attitudes toward vocational agriculture education and the recommendations of the national studies. Although all administrators were generally supportive of vocational agriculture education and the recommendations for reform of vocational agriculture education, vocational education directors were the most supportive of vocational agriculture. Negligible to low relationships were found between experience as a student and/or teacher of vocational education and attitudes toward vocational agriculture education or recommendations for vocational agriculture from the national studies.

Westmoreland, J. R. (1990). The importance of career planning and placement program components within the public universities of North Carolina. (Under the direction of Larry R. Jewell and James L. Flowers).

The purpose of this study was to gather information to determine how the various operations and structures of the career planning and placement offices within the 16 public universities in the University of North Carolina system were described by the career planning and placement directors or their appointees. The research was also designed to determine how registrants rate the importance of the various components of the career planning placement offices. The variables of grade point average, gender, age, and major field of study were examined to see if there were differences among registrants based on their ratings for each program component.

The population in this study was the registrants of the career planning and placement offices within the 16 public universities of North Carolina. The sample was systematically selected from names of registrants of the career planning and placement offices after the universities were stratified using the Carnegie system of classification. Multivariate analyses of variance, analyses of variance, and Fisher Least Significance Difference tests with a .05 level of significance were used to analyze the data.

A survey instrument was constructed using a guide for new members in the North Carolina Placement Association (1980) and incorporated the standards and guidelines from those set forth by the College Placement Council, Inc. (1986). The final survey instrument was validated by a panel of experts and the instrument was found to have a reliability rating (r=.56).

When the independent variables of grade point average and age were examined, the mean ratings of the registrants on the program components did not differ significantly. There were significant differences of the mean scores when using the independent variables of gender and major.

Martens, G. F. (1990). New hires in eight North Dakota agribusiness industries. Master of Science thesis, North Dakota State University, Fargo.

The major purpose of this study was to determine the number of employees hired during 1988 within the grain, implement, horticulture, dairy processing, veterinary, meat processing, agricultural finance, and livestock marketing industries in North Dakota. Objectives included determining the number of new employees by occupation in each industry, the levels of educational preparation and previous experience, and the sources of new employees.

Questionnaires and mailing lists used in two previous studies were modified and implemented. Total populations were surveyed in some industries; random samples were drawn for the remaining industries. Mean scores, frequencies, and percentages were calculated as well as estimates of new employees in each industry assuming a 100 percent response rate.

Many new employees had not special training prior to being hired. The two extremes of experience were most heavily represented in new employees: no previous experience and at least three years of experience. Most newly hired employees came from other similar businesses. Findings should be useful for those developing curriculum, those assisting students in planning careers, and those in leadership positions in each of the eight agribusiness industries.

Stanislawski, H. J. (1989). Perceptions of Minnesota private pesticide applicators toward agricultural pest and pesticide management, education, and regulations. Master of Science thesis, North Dakota State University, Fargo.

Specific objectives of this study includes (1) determining the degree to which Minnesota private pesticide applicators utilize recommended techniques and technologies in pesticide management, (2) determining the educational needs of Minnesota private pesticide applicators agree or disagree with selected current and proposed regulations regarding agricultural pesticides.

The population consisted of 204 private pesticide applicators from central Minnesota who attended pesticide certification training in March, 1989. The questionnaire was administered to the respondents at each of the selected training sites.

Farmers currently being trained in pest and pesticide management used most of the recommended techniques/technologies regarding pesticide use.

Participants indicated a need for continued education in the area of pest and pesticide management for crop production and applicator safety.

The majority of farmers generally perceived the selected current laws regulating pest and pesticide management as adequate. Farmers generally do not support the selected proposed changes in laws regulating pest and pesticide management practices, except for reducing the interval for applicator certification from five years to three years.

OHIO

Baker, M. (1990). Relationships between quality indicators of selected school programs and voter behavior in Ohio rural school district property tax elections. Doctoral dissertation, The Ohio State University, Columbus.

The purpose of this study was to determine the relationship between the following constructs of variables: (1) percentage of successful property tax elections, (2) financial effort, (3) financial ability, (4) cost per pupil, (5) nonfinancial characteristics, (6) financial issue history, and (7) quality indicators of academic, vocational agriculture, music and athletic programs. In addition, the variables which best predicted election success were determined.

The ex post facto study was descriptive and correlational in nature. A census of the population of the 74 rural school districts in Ohio were utilized for the study.

Data were obtained from state department of education records, U.S. Census Bureau records, records maintained by the state music association, and two investigator-designed instruments.

The results of this study indicated that quality indicators of vocational agriculture, music, and academic programs had little influence upon voter support in school issues. In terms of athletic programs, only the percentage of games won in boys varsity basketball was found to be important in influencing voter support. Voter support in favor of property tax elections decreased as the percentage of games won in varsity basketball increased. Districts experiencing winning teams were representative of communities with lower socioeconomic characteristics.

Cost per pupil, nonfinancial characteristics, and financial effort had little direct influence upon voter support. Financial ability and district financial issue history were meaningful in influencing voter support.

The following variables accounted for 53% of the variance in predicting voter support: percentage of Aid to Dependent Children students, percentage of bond issues, percentage of continuous issues, percentage of games won in boys varsity basketball, and percentage of special elections. As each of the five above-mentioned variables increased, voter support decreased.

Baker, M. & Hedges, L. (1990). Cooperating teacher evaluations and final student teaching grade. (Staff Study). The Ohio State University, Columbus.

The purpose of this study was to determine the influence that agricultural education cooperating teacher summative evaluations of student teachers had upon the final grade received in student teaching. Additionally, the study sought to identify underlying components of the summative evaluation instrument.

The population of the descriptive-correlational study was 160 purposefully selected preservice teachers between 1980 and 1986 at The Ohio State University. Data were collected from agricultural education departmental records maintained on the students.

When each of the 14 items on the instrument were examined, cooperating teachers rated student teachers highest on attendance and lowest on their knowledge of work. A performance component of the instrument was discovered consisting of the following traits: attitude, cooperation, initiative, dependability, response to authority, work habits, judgment, quantity/speed of work, knowledge of work, and prospect as a teacher. A quality component of the instrument was identified consisting of the following traits: neatness and orderliness, safety, quality of work, and attendance.

Student teachers received slightly higher quality component ratings from their respective cooperating teachers than performance component ratings. Student teachers averaged a B+ for the 15 units of student teaching.

Almost one-half of the final grade in student teaching was accounted for by cooperating teacher summative evaluations. The ten items contributing to the performance component ratings were the most meaningful aspects of cooperating teacher ratings when final student teaching grade was assigned.

Baker, M. & Hedges, L. (1990). The impact of the undergraduate curriculum upon agricultural education graduate career choice. (Staff Study). The Ohio State University, Columbus.

The purpose of this study was to determine whether agricultural education graduate career choice could be distinguished based upon student academic history in the professional education component of the undergraduate curriculum, teaching certification, and cumulative grade point average.

One hundred sixty graduates between 1980 and 1986 of the Department of Agricultural Education at The Ohio State University were purposefully selected for the study. Data were collected from both departmental and college records maintained on the former students.

This descriptive-correlational study discovered that the cumulative grade point average for all graduates was a B-. In terms of departmental courses, graduates received highest grades in Program Planning and lowest in Methods. As for nondepartmental education courses, graduates received highest grades in Professional Introduction II and lowest grades in Professional Introduction I. Over one-half of the graduates entered the teaching profession. Ninety percent of the graduates completed the necessary course work and documentation for state teaching certification.

Graduates who entered the teaching profession could be distinguished from graduates who did not--primarily from their grades received in student teaching (which were higher) and teaching certification history.

Barcinas, J. D. T. (1989). Comparison of attributes of rural and urban secondary schools and twelfth-grade students in Ohio. Doctoral dissertation, The Ohio State University, Columbus.

The major purpose of the study was to examine differences between rural and urban students and schools. The specific objectives include: (1) to describe and identify the educational and occupational aspirations of twelfth-grade students in Ohio's rural and urban high schools; and (2) to describe the extent of the relationships between educational and occupational aspirations and the student's personal background characteristics and selected school characteristics.

The population for this descriptive and correlational study consisted of 71 rural and 114 urban secondary schools in Ohio which met the rural and urban criteria as defined in the study. Ten randomly selected rural schools and five accessible urban secondary schools participated. Usable data were collected from 529 rural and 718 urban Ohio twelfth-grade students during March-May 1989.

The results indicated that Ohio's urban and rural twelfth grade students were significantly different on ethnicity, program enrollment, grade point averages, family socioeconomic status, parental educational attainment, parental expectations, parental discussions, and number of siblings. They were also significantly different on the following measures of aspiration: planned area of study, plans for advanced education, type of advanced education planned, when advanced education would begin, occupational expectation choice, occupational aspiration choice, and expected income.

Educational aspirations of the students were found to have significant low to substantial relationships with gender, grade point average, program enrollment, extra-curricular involvement, parental educational attainment, parental expectations, and parental discussions. Occupational aspirations of the students were found to have significant low to moderate relationships with gender, ethnicity, grade point average, program enrollment, family socioeconomic status, parental educational attainment, parental expectations, and parental discussions.

The relationships between educational and occupational aspirations and the characteristics of rural and urban schools were not significant.

Beaver, M. L. (1990). Factors related to successful participation by older youth in 4-H clubs in Ohio using the expectancy valence model of human motivation. Master of Science thesis, The Ohio State University, Columbus.

The purpose was to determine factors related to older Ohio 4-H youths' satisfaction with their 4-H participation. Substantial relationships were found between the following independent variables and dependent variable (satisfaction with participation): commitment, responsibility, working with younger members, 4-H club meetings and positive parental support. Moderate relationships were found between satisfaction and older 4-H member activities, competition, and

participation in local, county, state and national 4-H activities. The set of predictors of satisfaction included: 4-H club meetings, responsibility, commitment, parental involvement, competition, working with younger members, gender, and amount of 4-H activity participation. Total variance accounted for was 69 percent.

Burkholder, K. J. (1990). A visitor study of Inniswood Metro Gardens. Master of Science thesis, The Ohio State University, Columbus.

The major purpose of this study was to gather information about Inniswood Metro Gardens visitors to aid in administrative decision-making. The most important reason for visitation selected by respondents was to enjoy the beauty of plants. Viewing flowers on the grounds was the most commonly performed activity and the activity most enjoyed. Sixty percent of respondents reported learning something new about plants/nature during the visit, and 25% had at some time attended an educational program at the facility. The educational program topic of greatest interest to respondents was learning about flower gardening.

Conradi, L. J. (1990). A case study of the interest level and perceived advantages and disadvantages of multi-state specialist sharing in the cooperative extension service. Master of Science thesis, The Ohio State University, Columbus.

The intent of this study is to discover why more multi-state sharing of staff does not exist in the supply of State Extension Specialists in Ohio, Michigan, and Indiana. The interest level of Extension administrators, department chairpersons and Extension specialists to multistate sharing of staff were determined. The advantages and disadvantages, organizational barriers and the reasons for the slow implementation of the idea were gathered and evaluated. Possible organizational methods for coordination of multi-state staffing in the long term were proposed.

Interviews with selected Extension administrators, specialists and department chairpersons were conducted to determine why more multi-state positions do not exist. Poultry and dairy science departments in each state were selected because of their frequent mention at the February 1987 North Central Directors' meeting. The total sample population was 18. An interview schedule was used rather than mailed questionnaire to obtain more in-depth and valid answers. Open-ended questions were reviewed by competent colleagues to assess validity. The interviews were conducted between October 9 and October 25, 1989.

The interest in multi-state staffing was high. Advantages included improved clientele service and efficient resource use. Barriers included lack of a model, funding and current attitudes. Such positions should be administered by only one state and could be determined and administered within an existing organization. Opinions

are diverse and more communication is needed. Multi-state staffing efforts will increase when given higher priority and time for coordination. Earmarked federal funds and individuals promoting specialist sharing would enhance efforts.

Feliz, J. (1989). Perceptions of linkages between research and extension systems. Master of Science thesis, The Ohio State University, Columbus.

Technology transfer, the process by which research results are transferred from research centers to users, is a major concern in the rural development of all countries. Because technology transfer can increase agricultural productivity, the transfer process must be part of a nation's agricultural development plan. The researcher studied research and Extension systems in San Cristobal, Dominican Republic, to determine Extension agents' and researchers' perceptions of linkages between the Extension system and the research system. A census study (descriptive research) was conducted with 44 Extension agents and 15 researchers. Different instruments were administered to each group. The findings indicate that the technical focus of the researchers and agents is different, and that there is a lack of coordination between the two groups. A difference also was found between agents' and researchers' perceptions regarding the communications strategies used by the research system to diffuse technical information to the Extension system. Both groups agreed there is not a clear communications network between the two systems. Researchers appear to be conducting research without input from agents. The agents need frequent, short-term training about the specific information generated by the research system.

Gerakis, A. (1989). Attitudes of Ohio county extension agents toward satellite video teleconferencing in extension education. Master of Science thesis, The Ohio State University, Columbus.

Several county extension offices from across the state participate in live satellite video teleconferences produced by The Ohio State University. Teleconferences cover a variety of extension education topics, from agriculture to home economics to teenage problems. The county extension agents play an important role as facilitators at the local level. Therefore, the success of teleconferencing depends greatly on their attitudes. This study was conducted in order to determine the attitudes of the agents toward satellite video teleconferencing. The data was collected from a mail survey in the summer of 1989. Analysis revealed that, overall, the majority of the agents are "slightly positive" toward satellite video teleconferencing. However, they tend to prefer pre-recorded video tapes over live teleconferences. Cross tabulation between the attitude scores and a variety of personal

characteristics showed negligible to moderate relationships only. The implication from the study is that the extension service should continue financing satellite video teleconferencing but at the same time should focus on video tape production. Other suggestions from the extension agents include improvements in the quality of programs and in the reliability of the technology, so that the agents feel more confident using it.

Hard, D. L. (1989). Correlates of accidents in Ohio vocational agriculture laboratories. Doctoral dissertation, The Ohio State University, Columbus.

The purpose of this study was to describe the types, frequencies, and areas of accidents occurring in Ohio vocational agriculture laboratories. The relationships between selected variables and accidents in the laboratory were investigated. Also, instructor and student safety attitudes were analyzed along with factors that were thought to be influences upon them.

The research design would best be described as correlational descriptive research. Data was obtained by mail questionnaire.

The majority of accidents were of the minor first-aid type occurring primarily in the woodworking or weld/metal area. As a whole, teachers and students ranked themselves high on a six item Likert-type scale that assessed safety attitudes. However, 26% of the teachers responded they felt their instructional laboratories were hazardous to work in; about 50% did not know the recommended guidelines for noise, lighting, or ventilation requirements of their laboratories; 20% replied they might teach unsafe practices by example; 51% responded their tools/equipment were sometimes unsafe to operate; and almost 90% believed they were less careful than they should be at times. Also about 10% of the teachers responded they did not always require safety glasses to be worn in the laboratory. There were no strong associations found for teacher safety attitude.

Student safety attitude had significant substantial associations with: students' perception of teacher safety attitude and knowledge; and student's perception of their parents safety attitude, knowledge and home safety environment.

The vocational agriculture laboratory and the practices of some teachers appear to hold the potential for harm to students. Since student perceptions of teacher safety factors and parental safety factors had the strongest associations with student safety attitude, these would be the most likely areas to concentrate efforts on in order to impact student safety attitude. It is apparent that teachers need to exhibit correct safety practices and attitudes toward safety and it would be desirable to work with parents to increase student safety attitudes.

Kandeh, J. B. A. (1989). The relationship between the performance of Ohio Cooperative Extension Service agricultural agents and their educational and occupational background. Doctoral dissertation, The Ohio State University, Columbus.

The purpose of this study was to determine the relationships between the performance of OCES agricultural agents and their educational, occupational and selected demographic characteristics. Technical and supportive academic courses, length, and number of positions of prior work experience, area of program specialization, tenure, grade point average, and areas of responsibility were the independent variables. Supervisor rated scores, and agents' self-rated scores were used to determine the levels of the dependent variables.

All Ohio county agents in agriculture made up the target population, N = 76. The sample size was 54 with usable data from 44. The study was descriptive/correlational. Data were collected from OCES records and by mail questionnaire.

The agents were not significantly different on either supervisor rated or agents' self-rated job performance ratings with regard to: credit hours of technical agriculture and credit hours of supportive courses, length, and number of positions of professional work experience, tenure in extension, grade point average, program area of specialization, and numbers of program areas of responsibility.

Agents' job performance was not influenced by any of the independent variables. To emphasize technical agriculture courses over supportive courses is not supported by this study. Extensive training does not hinder job performance. To expect job performance improvements or adverse effects from longer periods of prior work experience, higher grade point average, particular program areas of specialization, longer tenure in current agent position, and higher numbers of program area of responsibility was not supported by the findings. Flexibility in implementing employment policies, and programs affected by the occupational and educational background of agents should be considered.

Kitinoja, L. A. (1989). Effects of perceived involvement of stakeholders on administrators' readiness for utilization of program evaluation results. Doctoral dissertation, The Ohio State University, Columbus.

The purpose of this experimental study was to explain the effects of varying the level of stakeholder involvement in evaluations upon the subsequent readiness of recipients of the report to utilize the results. Stakeholders were defined as people whose decisions can effect the program, and people who can be affected by the program. Administrator involvement as stakeholders (ADMIN) and client involvement as stakeholders (CLIENT) were the manipulated variables--each was set at three levels (none, moderate or high) within a series of nine simulated evaluation reports, resulting in a two-way factorial, post-test only control group design. The administrators serving as the recipients of

the reports were county directors in the U.S. Cooperative Extension Service. "Readiness for utilization" (UTIL) is a construct previously developed by Greene (1988). A variety of antecedent variables (attitude toward evaluation, experience, training in evaluation, previous use of evaluation results) and variables related to the perceptions of the report (quality, technical adequacy and adequacy of stakeholder participation) were measured in order to increase the power of the test.

The evaluation reports and instruments of measurement were field and pilot tested using personnel in Ohio. Construct validity and internal reliability were assessed. A simple random sample of 180 county directors was selected from the 1989-90 directory of U.S. CES personnel, and then randomly assigned to one of the nine treatment groups. Three mailings of the survey instrument resulted in a 94 percent response rate. Subsequent analysis showed that the groups did not differ on any of the antecedent variables.

The results showed that ADMIN and CLIENT had no significant direct effect on readiness for utilization (UTIL) overall. However, when administrators were not involved as stakeholders, CLIENT had a significant quadratic effect on UTIL. In addition, a large portion the variance in UTIL (50-60 percent) could be explained by the linear combination of attitude toward evaluation and the variables related to perceptions of the report. When administrators were not involved as stakeholders, attitude was relatively more important, while as the involvement of administrators as stakeholders increased, the contribution of attitude toward evaluation decreased, and the contribution of administrators' perceptions of the report increased. The researcher recommends inclusion of stakeholders in the evaluation process in order to ensure that pre-existing negative attitudes toward evaluation do not influence administrators' readiness for utilization of evaluation results.

Lyles, I. W. (1990). The administrative role of the Mississippi County Extension Coordinators: Importance, expectations, behaviors and training needs. Doctoral dissertation, The Ohio State University, Columbus.

The purpose of the study was to describe the importance, expectation, behavior and training needs for the administrative role of the Mississippi County Extension Coordinator as perceived by state and district administrators, county extension coordinators, and other county staff members. The study also attempted to determine if any relationship existed between the variables of race, gender, age, educational level, population of county, tenure, staff size, district, position in Extension and major field of study for highest degree and perceptions of importance, expectation, behavior, and training needs.

Respondents were 213 Mississippi Cooperative Extension Service employees. Data were collected by a mailed questionnaire, and from personnel files. The survey instrument included Likert-type scales for

four administrative roles: 1) personnel management; 2) program administration; 3) financial management; and 4) office management.

Administrators, county extension coordinators and other county staff members perceived each of the four administrative roles to be of high importance to the administrative role of county extension coordinators. The comparison of ratings of expectation and behavior indicated that administrators, county extension coordinators and county staff members perceived that county extension coordinators should be performing at a higher level than they currently were performing.

The findings indicated that county extension coordinators need training pertaining to the four administrative roles. Ranking of the training needs of the four administrative roles but varied for administrator, county coordinators, and county staff members.

There were no relationships of practical significance between the perceived importance, expectation, behavior and training needs for the administrative roles and the demographic variables.

Maung, M. Comparative analysis of agriculture extension models and development of recommendations for agricultural extension system of Burma. Doctoral dissertation, The Ohio State University, Columbus. Funding: Burma Agricultural Production Project (BAPP) funded by USAID and Agency: Burmese Government.

This study was descriptive qualitative research of a comparative nature. The major problem of Burmese economic development was that the agricultural production was very low. The primary purpose of this study was to compare and contrast agricultural extension models and systems recently widely used for agricultural development in different countries. The secondary purpose of this research was, through a systematic analysis of the Burmese extension system, to develop recommendations that will improve the overall performance of the national extension system to reach the major groups of small farmers with improved agricultural technology and thereby increasing their productivity, incomes and level of living.

Four agricultural extensions systems: 1) the U.S. Land Grant model; 2) Training and Visit (T&V) system; 3) Farming System Research and Extension (FSR/E); and 4) a typically less developed country's agricultural extension system, taking Burmese system as an example, were described and analyzed using eight specific criteria to identify particular strengths and weaknesses of each extension system. The criteria used in this study are: the linkage between research and extension, government financial commitment to agricultural sector, adequate human resources, program development procedures, extension delivery methods, time allocation to educational duties, technology utilization, and monitoring and evaluation procedures.

Based on the analysis of the strengths and weaknesses of the Burmese extension systems, general and specific recommendations were made. Emphasis was placed on the establishment of a system for technology development and transfer in Burma by modifying the present

existing agricultural extension system. These recommendations may help strengthen the Burmese agricultural extension system. The study concluded that technology was one of the most important factors of agricultural growth. The supply of production inputs and the provision of price incentives also determined the extent of adoption of agricultural technology.

Najjingo, K. M. (1990). An assessment of the technical and professional competencies needed by extension personnel in the Central Region of Uganda. Master of Science thesis, The Ohio State University, Columbus.

The purpose of the study was to identify and describe the professional competencies that extension personnel in the Central Region of Uganda need. The perceptions of the extension personnel, their supervisors and their trainers were sought and related to selected demographic characteristics.

Data was collected using a questionnaire personally delivered to the population. The questionnaire consisted of two parts. Part one had the technical and professional skills needed by the agents. Technical skills included the crop production techniques of the four major crops in the region, which are, coffee, bananas, maize, and beans. Professional skills included communication and teaching, program planning, program evaluation, administration and continuing education skills. Respondents were asked to rate their perceptions of the importance of in-service training for each of the skills using a 4-point scale where: 1=Extremely Unimportant, 2=Unimportant, 3=Important, and 4=Extremely Important. Part two asked for the following demographic characteristics: gender, age, current position, years worked in agricultural occupations, years employed in the Ministry of Agriculture, years employed in the University, the highest educational qualifications, the district in which extension agents were employed, experience in farming, years worked with coffee, years worked with bananas, years worked with beans, and years worked with maize.

Content validity was established by a panel of experts. Test re-test reliability was determined by calculating the percent agreement between two administrations of the questionnaire (four weeks apart) to seven agents in the districts studied. The percent agreement for all major categories ranged from 87% to 100%.

Respondents indicated that it was important or extremely important for extension personnel to be updated on a majority of the items. Eighty-one out of the 90 items had a mean rating of 3 and above. The mean ratings for each topical area were as follows: continuing education (3.37), program planning (3.35), administration (3.33), communication and teaching (3.32), program evaluation (3.30), bananas (3.22), coffee (3.21), beans (3.19), and maize (3.19). There was a stronger need for training in professional skills than for technical skills.

No substantial or very strong relationships were found between the perceptions and the demographic characteristics of the agents.

Likewise, no statistically significant difference existed between the perceptions of the extension personnel, their supervisors, and trainers (at .05 level). There was consistency in the perceptions of need for in-service training.

Ndoum, M. D. (1990). Information needs and information seeking practices of Ohio production agriculture teachers. Master of Science thesis, The Ohio State University, Columbus.

The purpose of this study was to describe Ohio production agriculture teachers in terms of the kinds of information they need, the sources of information they rely on, the usefulness of the sources they use, and the criteria they use in selecting information sources.

The population consisted of all Ohio production agriculture teachers employed during the 1989-1990 school year (N=305).

A simple random sample of n=171 production agriculture teachers was sent a mail questionnaire. The questionnaire was previously checked by a panel of experts, field tested, pilot tested and revised. Follow-up procedures consisted of a reminder card, a follow-up mail-out package. One hundred twenty-four questionnaires were returned before data analysis began. Comparison between early and late respondents revealed no statistical difference between the two groups. Findings of the study revealed that Ohio production agriculture teachers: prefer easily accessible information sources that are accurate, reliable, and responsive to their needs; most frequently use information sources that are located in or related to their school, and view these sources as the most useful for their work; tend to rely on colleagues within their taxonomy or superiors within their own field; feel their information needs are greater in some instructional areas than others. It was recommended that: dissemination agencies work as a team to improve the accessibility, reliability, and accuracy of the information products and services they provide to Ohio production agriculture teachers; periodic assessments of Ohio production agriculture teachers information needs be conducted; home or occupational visits be used as ways of disseminating information among Ohio production agriculture teachers; sociometric studies be conducted in order to identify potential information leaders among Ohio production agriculture teachers; further probing and analysis be done in order to identify the occupational tasks for which Ohio production agriculture teachers need information.

Nieto, R. D. Perceived educational and financial needs of small-scale dairy farmers in Socopo-Barinas-Venezuela. Master of Science thesis, The Ohio State University, Columbus.

The main purpose of the study was to determine the perceived educational and financial needs of small-scale dairy farmers. Data were collected from 137 farmers. The greatest needs for educational programs in dairy farm management activities were in the areas of forages, herd health, and reproduction. Forages and livestock were the two areas in which farmers need the most financial help. Veterinarian, county extension agents, and neighbors were the preferred sources of receiving technical dairy information. Farmers preferred demonstrations, farm visits, and field trips as teaching techniques.

Nunez, C. (1989). Adoptive behavior of rice growers in the Dominican Republic. Master of Science thesis, The Ohio State University, Columbus.

The purpose was to describe the adoptive behavior of rice growers who participated in a rice production training program in the Dominican Republic. The findings indicate that the variation in the rate of adoption behavior for the 10 weed control techniques was more closely associated or influenced by the project location than any other demographic characteristic of the rice growers. The Training Program was effective in transferring new technology if, the technology was compatible with the current level of development of the farmers. The Training Program can have a wide audience instead of targeting certain groups of farmers.

Okiria, A. E. (1989). Job satisfaction of agricultural college teachers in Uganda. Master of Science thesis, The Ohio State University, Columbus.

The main purpose of the study was to describe the job satisfaction of agricultural college teachers in Uganda. The design of the study was descriptive. Data were collected from 54 teachers by distribution of a valid and reliable questionnaire. Descriptive statistics were used to analyze the data. The findings revealed that the teachers were relatively satisfied with intrinsic factors, but, were strongly dissatisfied with extrinsic factors. The overall job satisfaction level for the teachers was decreased by extrinsic factors.

Raven, M. R. (1990). The relationship between enrollment in a rural high school and admission to and subsequent academic performance in a college of agriculture. Doctoral dissertation, The Ohio State University, Columbus.

The purpose of this study was to describe the differences between rural, semi-rural, suburban, and urban students' academic preparation prior to entry to The Ohio State University College of Agriculture and subsequent academic performance for the entering freshmen prior to and following implementation of the unconditional/conditional admissions policy.

The populations for the study were the autumn new first-quarter freshmen in the College of Agriculture for 1982 to 1988. The design of this census study was a longitudinal survey.

Data used were obtained through examination of students' official records. Data included graduating high school; high school courses, grades, and class rank; ACT Composite scores; college courses, grades, and major; and graduation status. Students were classified based on the county in which the high school they graduated from was located. County classification was based on population size and Metropolitan Statistical Area. The four types of students were compared in terms of academic preparation, ability, and success.

The findings indicated that the academic ability and preparation increased for all students from 1982 to 1988. Urban students showed a greater increase in academic ability and preparation than the other three groups.

Rural and semi-rural students took more vocational agriculture than did urban and suburban students. Urban students completed more foreign language and visual/performing arts courses than did the other three groups.

Students majoring in the non-traditional non-production areas were more likely to be from urban or suburban schools. Students who were dismissed or withdrew voluntarily from the university were also more likely to be from urban and suburban schools.

High school class rank explained the greatest amount of variance in the final college GPA. ACT scores also explained a practically significant amount of variance in final college GPA. High school location and class size explained little variance in final college GPA.

Rodriguez, J. (1989). Perceived educational needs of farmers in the Santa Barbara County-District Ezequiel Zamora-Barinas State-Venezuela. Master of Science thesis, The Ohio State University, Columbus.

A descriptive correlational design was used in this study to identify the perceived agricultural education needs of the Santa Barbara farmers. A face-to-face survey instrument was developed to collect the data from a random sample of 276 farmers. Findings indicated that the farmer's highest educational needs are in machinery and crop production,

the educational needs scores and the demographic variables of the farmers are independent of one another, farmers prefer on-site farm visits, field demonstrations and radio programs for receiving technical information, and farmers prefer to receive technical information at their own farms during the summer months.

Schneider, C. D. (1990). Knowledge level and attitudes of eighth grade students about agriculture and natural resources. Master of Science thesis, The Ohio State University, Columbus.

The main purpose of this study was to identify the levels of knowledge and attitudes that eighth grade students have about agriculture and natural resources. A census study was conducted with 122 eighth grade students at one junior high school. The mean score for the knowledge test was 48%. The mean attitude scores for agriculture and natural resources were 4.39 and 3.61 respectively on a six-point scale with a lower score indicating a more positive attitude. Moderate relationships were found between attitude about agriculture and natural resources and club involvement, outdoor activities, and place of residence. Boys had slightly higher knowledge level scores than girls. Students had more positive attitudes towards natural resources than towards agriculture. A need appears to exist for increased education and awareness in agriculture and natural resources. When attempting to increase student knowledge levels and attitudes, involving students directly in related club and outdoor recreational activities would be helpful. Current agricultural education instructors should consider the possibility of adding an agriculture and a natural resources class at the junior high level or offering an agricultural or natural resources student organization or club. These opportunities would provide first-hand experiences in agriculture and natural resources for student.

Selassie, M. H. (1989). Methods used to teach agriculture. Doctoral dissertation, The Ohio State University, Columbus.

The main goal of this study was to determine the extent to which teachers of production agriculture used a variety of teaching methods in teaching livestock production, crop production and agricultural mechanics. This study included three groups of Ohio production agriculture teachers, i.e., teachers who taught 7 or more years, cooperating teachers, and first year teachers. The senior students of these production agriculture teachers were also asked to what extent their teachers used the various teaching methods as a way of attempting to corroborate teacher self reported data.

Furthermore, this study sought to determine: 1) the extent to which frequency of use of teaching methods was associated with teaching experience, teachers knowledge of subject matter, professional training, level of education, adequacy of equipment and age; 2) the relationship

between teacher reported use of teaching methods with their students reported perception of use of teaching methods; 3) teachers use of specific guidelines when selecting teaching methods; and 4) the extent to which the three groups of teachers differed on the variables of frequency of use of teaching methods, subject matter knowledge and professional training.

The results showed that even though the intensity of use of teaching methods varied from teacher to teacher, teachers did vary methods when teaching production agriculture. Lecture/discussion and general class discussion were used most frequently when teaching the four areas of production agriculture. Furthermore, results indicated that professional training and subject matter knowledge were highly associated with frequency of use of teaching methods. The students reported extent of use of methods was related to teacher self reported data to varying degrees. Teachers paid more attention to subject matter, teaching material availability and availability of time when selecting teaching methods than they did with "nature of the students" and with matching domains of learning with students intellectual development.

Strow, M. M. (1990). Factors that affect enrollment in the Tri-Star vocational courses. Master of Science thesis, The Ohio State University, Columbus.

The major purpose of the study was to investigate factors that influence a student not to enroll in a vocational course offered through a county career center. The population for the study was all non-vocational 11th grade students in five of the nine schools in the career center district (n=324). A written questionnaire was selected as the survey instrument. The three most commonly selected reasons for not enrolling in a vocational course were: a) "I felt my home high school would better prepare me for college." (85%); b) "I was not interested in the vocational courses offered." (77%); and c) "Enrolling in a course at the career center conflicted with courses I wanted to take at my home high school." The three statements that were selected the least times as reasons for not enrolling in a vocational course were: a) "I thought the vocational courses would be too difficult for me." (4%); b) "Transportation to and from the career center created scheduling problems for me at my home high school." (11%); and c) "I did not want to associate with students at the career center." (13%). The greatest sources of discouragement to enroll in a vocational course came from the mother/female guardian (18%) and the father/male guardian (15%). Guidance counselors provided the largest source of encouragement for students to enroll in a vocational course. High school scheduling should be more flexible in order that students may enroll in a dual academic and vocational curriculum. If students are making their own enrollment decisions, it is critical for the students to be thoroughly informed about the courses available to them and the available career opportunities. Parents need to receive more information in these areas

in order that they may truly help their children make the best decisions possible.

Wims, D. (1989). A descriptive study of Southwest Georgia rural schools and twelfth grade students' educational and occupational aspirations and expectations. Master of Science thesis, The Ohio State University, Columbus.

The purpose of this descriptive study of Southwest Georgia rural schools and twelfth grade students was to describe the characteristics of the schools, and students' personal and educational backgrounds, and their occupational and educational aspirations and expectations. In the five randomly selected rural high schools 73.4% of the twelfth grade students were Black. The socioeconomic status and educational attainment of the parents was low. Parents had the greatest influence on students' plans, and the majority of the seniors expected to continue their education after high school. The students aspired to enter higher level occupations and earn more money than they actually expected.

OKLAHOMA

Adam, B. M. (1990). Analysis of selected aspects of international agriculture involvements at land grant universities in 16 southern states of the United States. Master of Science thesis, Oklahoma State University, Stillwater.

The purpose of the study was to determine the degree of awareness, nature, and extent of involvement in international agriculture programs in a group of land grant institutions. The study thus assessed selected aspects of Agricultural Education Departments' involvement with international agriculture. The specific objectives of the study: assessed the degree of awareness and interest in international agriculture; determine the extent of agricultural education department involvement in selected aspects of international agriculture; determined the extent of requirements of international dimension courses; and determined sharing in the classroom of overseas experience by faculties, American students, and international students.

The population consisted of 28 Agricultural Education Department Heads from both the 1862 and the 1890 land grant institutions in 16 southern states of the United States. The questionnaire was developed to elicit responses as to level of awareness, extent of involvement, and requirements for a degree program. Responses were obtained from the Head of Departments from 24 of the 28 Agricultural Education Departments surveyed. Responses on level and extent of awareness, interest, and involvement were determined with a Likert-type scale. Data were analyzed using frequencies, percentages, standard deviation, and mean responses.

Agricultural Education Department Heads expressed interest in overseas assignment. These were in teaching, agricultural development projects, extension, and consulting. There was awareness of the increasing demand for training both in the United States and in other countries. There was awareness of international development, organizations, agencies, and programs. There was lack of awareness of the international research centers. A majority of the universities do not have requirements for international dimension courses. Also, foreign languages are not required to earn a degree. Some institutions have internship programs for international students. There was agreement on utilization of faculties', United States students', and international students' overseas experiences in enhancing international programs in agricultural education.

Cannon, T. G. (1990). The Northeast District Agricultural Educators' perception of program changes in the state of Oklahoma. Master of Science thesis, Oklahoma State University, Stillwater.

The purpose of this study was to determine the perceptions of Agricultural Educators in the Northeast Supervisory District of Oklahoma towards the recommended changes in the Agricultural Education Program on

the state and national level. There were ninety-five (95) responding teachers (100%) to the study. They were asked to respond to questions about their feelings towards changes in the program and their present resource status to implement the changes. They were also asked their opinions about other areas pertinent to the study. The questions were developed on perceptions of what might be the most basic and fundamental criteria for modernizing the Agricultural Education Program.

Analysis of findings indicated that Agricultural Educators generally accepted recommended changes in the program, and were implementing recommended changes and making personal preparations for understanding and training in the uses of the new curriculum. However, it was concluded there were at least three areas of dissatisfaction: (1) The name changes of the youth organization and program (2) Dissatisfaction with school counselors when advising students about Agricultural Education (3) Lack of sufficient funding to insure quality transition. Further studies should include a broader, more extended study relevant to the purpose of this study and a follow-up study in a minimum of five (5) years to update the progress of modernization.

Cunningham, J. R. (1990). Selected Latin American students' perceptions of the status of underdevelopment in Latin America. Master of Science thesis, Oklahoma State University, Stillwater.

The intent of this study was to determine selected Latin American students' perceptions of the status of underdevelopment in Latin America. The 40 respondents (100%) were Latin American students receiving higher education in Oklahoma. The students were asked to respond to questions concerning the status of underdevelopment in their countries of origin. The questions were developed with consideration to the structure of an integrated development program, more specifically, those factors associated with Third World development. A five point Likert Scale of categories was used to allow the respondents to rate the degree of significance relative to each of the questions.

Analysis indicated the quality of life in rural Latin America is generally poor. It was concluded that the condition of rural health care in Latin America is very poor, that primary education is perceived as very important yet not always available and that rural peoples are migrating to the cities. It is suggested that these three areas of discontent be further researched based upon the findings of this study.

Kinney, R. B. (1990). An assessment of forage production and utilization as perceived by selected dairy producers in a nine-country area of Oklahoma. Master of Science thesis, Oklahoma State University, Stillwater.

The purpose of this study was to assess forage production and utilization practices as perceived by selected dairy producers in a nine-country area of Oklahoma. Personal on-site interviews were conducted during November, 1989. Fifty-seven (95%) of the 60 selected dairy producers participated in the study. Producers were selected on the basis of (1) membership in county Dairy Herd Improvement Associations, which had 2500 or more animals, (2) Milk production from cattle of Holstein breeding, and (3) Operations which obtained at least ten percent of their total dry matter forage from pasture. The 28 item questionnaire consisted of both open and forced response items. An interval scale was utilized to ascertain ordinal and nominal data. A "Likert-Type scale was used to assess the producers perceptions concerning selected items on both 5- and 4-point scales. Frequency distributions, percentages, means, ranges, and standard deviations were the descriptive statistics utilized to analyze the data.

The average age of the respondents was 43.8 with the largest group being in the 31-35 age range. All 57 respondents were full-time farmers. A majority of the dairy producers conducted operations from 78-160 acres in size. With regard to grazing operations 44 practiced continuous grazing of lactating animals, 43 operated some type of seasonal grazing program, and 16 conducted rotational grazing. Bermudagrass pasture and corn harvested for silage received the most attention with regard to soil fertility. Respondents' largest capital outlay for equipment was for haying equipment. Rotational grazing was perceived to be at least "important" by 42% of the respondents. The producers saw themselves as early adopters, however 48 of 57 stated that "tradition was a major constraint" in the adoption process. As a group the respondents were well educated. The producers practiced continuous grazing and interpreted seasonal grazing as a form of rotational grazing. The respondents had a positive perspective concerning the benefits of rotational grazing. Extension educators, animal nutritionists, and range scientists should emphasize the need for forage production and utilization programs among producers through short-courses, workshops, seminars, and field days.

Ledford, K. W. (1990). The importance of specific horticulture skills as perceived by secondary horticulture instructors and selected horticulture business leaders. Master of Science thesis, Oklahoma State University, Stillwater.

During the spring and summer of 1989, secondary school horticulture instructors and horticulture business leaders were surveyed to determine which skills they felt were important for students beginning employment in the horticulture industry. A survey instrument

consisting of fifty-four selected skills was developed and mailed to the population of the study. The purpose of the study was to determine if the instructors were emphasizing the skills which the employers felt were important to begin employment at entry level positions in horticultural fields.

Fifteen of the fifty-four skills received lower scores by the instructors than business. This indicated that those fifteen skills were rated as having more importance to the businesses than the instructors were placing on them. All of the selected skills within the propagation and chemical use categories were adequately emphasized. The mechanical skills category received low scores from both the instructors and the businesses. However, the high standard deviations from the businesses indicated that some of the businesses did place a high importance on mechanical skills.

Methvin, R. L. (1990). An assessment of the Oklahoma Cooperative Extension's IFMAPS Program as perceived by the county professional field staff. Master of Science thesis, Oklahoma State University, Stillwater.

The purpose of the study was to determine Extension Agents' perceptions of the effectiveness of the Oklahoma Cooperative Extension Service's IFMAPS Program (Intensive Financial Management And Planning Support) regarding their experiences gained from the program and how these experiences may be applied to assist a broader clientele. The scope of the study included a possible response from an Extension Agent with IFMAPS responsibility and/or experience from each of the 77 counties in Oklahoma. Eighty-five percent of the returned questionnaires were usable. Frequency distributions, percentages, and arithmetic means were the descriptive statistics used to analyze the data. The Chi-Square test was utilized to assess and compare relationships between observed and expected responses among selected statements.

The IFMAPS program was believed to have been timely and effective; however, the clientele rated the effectiveness of the IFMAPS program higher than the Extension Agents. The Agents indicated that they had a heavy reliance on the IFMAPS Extension Specialist for county IFMAPS assistance. Peer pressure was determined to be a major constraint for IFMAPS involvement by some farmers. The teaching technique that helped the most people was the "one-to-one consultation" with the IFMAPS Specialist. Survival of the farm enterprise and restructuring of farm debt were the main reasons farmers participated in the IFMAPS program. Demographic characteristics had little affect on the effectiveness of the program and perceived future educational needs. A need exists for future IFMAPS programs to include an emphasis on financial management, farm planning, and marketing. Due to the Extension Agent's time restraints, IFMAPS Specialists should continue the "one-to-one consultation" with Extension's clientele in order to best meet their needs.

Murrell, D. G. (1990). An assessment of the need for a Young Farmer Program in Granite, Oklahoma. Master of Science thesis, Oklahoma State University, Stillwater.

This assessment study determined the need for a Young Farmer Program in Granite, Oklahoma. The scope of this study included 87 area farmers and ranchers on the 1988 Agricultural Stabilization and Conservation Service (A.S.C.S.) and Soil Conservation Service (S.C.S.) membership lists living in the communities of Granite, Lake Creek, and Willow, Oklahoma. The questionnaires contained statements requiring responses on an interval scale as well as "yes" or "no" type questions. Short answer type questions made up the third part of the questionnaire. Data collected were hand tabulated on a master questionnaire. Total number (n) as well as percentage were tabulated by the researcher.

Analysis indicated that there was strong interest in and willingness to participate in a Young Farmer Program. The average participant was over 50 years of age, derived their income from full-time production agriculture. The average participant had completed high school and one year of college. The months of October through March were the preferred months for programs and activities. Prospective members preferred carefully planned and organized meetings. The priority of topics which should be dealt with were: agronomy, farm business management, veterinary skills, agriculture mechanics, animal science, alternative incomes, horticulture, natural resources, and entomology.

Paret, A. M. (1990). Follow-up of female graduates of the College of Agriculture at Oklahoma State University: 1985-1989. Master of Science thesis, Oklahoma State University, Stillwater.

Phone interviews were conducted from November 1989 to January 1990 with the purpose of gathering specific information from female graduates of the College of Agriculture at OSU about their current employment and its relation to their college training, the quality and adequacy of their academic preparation at OSU as perceived by them, factors the female graduates experienced and/or experience as enhancing or inhibiting satisfactory employment, and their perceptions as to sex bias and sex stereotyping in the area of their college training and their work. The study population consisted of all female graduates who earned a B.S. degree from the College of Agriculture from 1985-1989, whose names were supplied by the OSU Alumni Association, and who could be reached by the domestic phone system. Seventy-six percent of the study population (192 graduates) participated in the study.

The distribution of female students in regard to degree majors differed from the total study population with several degree majors proportionately being chosen more often and others less often. None of the respondents had majored in Agricultural Engineering, Mechanized Agriculture, or Plant Pathology. A high percentage of graduates in some degree major areas indicated that their first or present position was

not related to their college degree. In general, the female students felt positive about their college education in regard to quality of instructors, course content, equipment and facilities, as well as being adequately prepared for their first position after graduation. However, some degree major groups rated certain aspects of their college education less positively. Even though several factors seemed to influence respondents' careers (e.g. having children), for the majority, gender had not influenced their career. The majority of graduates felt that they were not treated differently during their college education because of being a female in the field of agriculture. However, over 50% of the respondents felt they had been treated differently while seeking employment and in their jobs. Stereotypes and beliefs regarding females and difficulties in job placement were considered important barriers women have to face in the field of agriculture. Suggestions for improvements in the College of Agriculture at OSU regarding female students include increasing efforts regarding job placement and improvements in publicity and recruiting.

Razavi, J. (1990). An assessment of Agriculture Extension Workers' training needs in the area of Mechanized Agriculture in Iran as perceived by the participants in the Fifth National Meeting on Agriculture Extension held in Isfahan, Iran. Doctoral dissertation, Oklahoma State University, Stillwater.

The purpose of the study was to identify the training needs of agriculture extension workers in the area of mechanized agriculture in Iran. The respondents of the study were asked to determine the degree of cooperation between agricultural colleges and the Extension Service in Iran. The study also attempted to determine the best location and training interval for the extension workers in mechanized agriculture. Furthermore, the study sought to answer questions relating to the extent of training needed by the extension workers in six competency areas of operation and safety; maintenance and service; major repairs; selection of equipment and matching to auxiliary machines; tillage systems; and types of farming operations under the area of farm power and machinery and farming systems. Finally, the respondents were asked to express their views with regard to present level and problems of agricultural mechanization in Iran, the role of mechanization in boosting agricultural productivity, and selection of appropriate technology for mechanization.

The population of the study consisted of the participants in the Fifth National Meeting on Agriculture Extension held in Isfahan, Iran in the spring of 1989. Of 110 questionnaires distributed, 86 were received for analysis.

The findings of the study indicated that there was little cooperation between agricultural colleges and the Extension Service in Iran. Agricultural high schools, two-year agricultural colleges, and provincial departments of agriculture were perceived to be the best places for training extension workers in the area of mechanized

agriculture on an annual basis. Overall, agriculture extension workers in Iran needed "Much" training in all areas of competency. The rank order for training in four areas of competency for 11 different classes of machinery and equipment was determined to be operation and safety, maintenance and service, selection of equipment and matching to auxiliary machines, and major repairs. Furthermore, the extension workers needed the most training in all areas of competency for field sprayers and grain drills and the least training for small power units, combines, and land leveling equipment. Also, it was found that most problems associated with mechanization in Iran had to do with lack of equal and just distribution of farm machinery and equipment and spare parts for them among farmers of various regions. The respondents of the study also indicated that small and medium farmers' farms needed the most attention in terms of technology selection in order to raise their socio-economic status in rural areas of the country.

Renison, G. C. (1990). The value of the FFA's Work Experience Abroad Program by selected participants. Master of Science thesis, Oklahoma State University, Stillwater.

The purpose of this study was to determine the value and effectiveness of the FFA's Work Experience Abroad Program as perceived by selected participants during the five year period, 1978 to 1983. A mail survey was conducted in May, 1984. The population consisted of 442 past WEA participants. Two Hundred sixty-nine (60.86 Percent) individuals returned useable surveys. The fifty item questionnaire consisted of open and forced response items designed to collect nominal, ordinal, and quantitative data. The questionnaire comprised three sections: 1) demographics of the participants, 2) demographics of the host country, and 3) perceived value and benefits of the WEA program. Interval and "Likert-type" scales were utilized to secure data. Frequency distributions, percentages, rank orders and means were the descriptive statistics used to treat the data.

Sixty-three percent of the selected WEA participants were male and came from a rural background. They also held the office of chapter vice president and earned the state farmer degree. Fifty-nine percent of the respondents indicated that the social and cultural experiences were "extremely valuable". The respondents perceived the effectiveness of WEA staff to be "good". The strong points of the WEA program were length of service and selection of host countries, while the major weaknesses were language assistance and counseling for European participants. The opportunity to learn new social customs was a valuable experience, while the WEA experience also seemed to motivate the participants to learn more about U.S. Agriculture. The WEA provided the participants a better understanding of the impact of agriculture on a global basis. The WEA program creates a positive image for the National FFA. FFA advisors should identify and encourage potential candidates to participate in the WEA program. Further Research should

be conducted to study past WEA participants' involvement in agriculture, national and world affairs.

Topliff, L. A. (1990). Characteristics of selected secondary agricultural education horticulture programs in Oklahoma with implications for modeling future programs. Doctoral dissertation, Oklahoma State University, Stillwater.

Secondary education horticulture teachers and horticultural businessmen were surveyed to determine which units in horticulture they perceived should be taught. Exemplary horticulture programs were determined by James Yeisley, Horticultural Specialist, State Department of Vocational Technical Education. Teachers were asked to complete a mailed questionnaire and to distribute and collect completed questionnaires from five horticultural businessmen in their communities. These businesses were to include: a nursery; a greenhouse; a floral shop; a landscape business; and a fruit, nut and/or vegetable producer. The purpose of this study was to determine the characteristics of selected secondary educational horticulture programs as perceived by horticulture teachers and horticultural businessmen in Oklahoma with implications for modeling future programs.

There was little difference between the perceptions of teachers and businessmen as to which horticulture units should be taught. The following units were perceived to be necessary to be taught in secondary agricultural education horticulture programs: (1) Introduction to Horticulture, (2) Equipment Operation, (3) Plant Growth and Development, (4) Sexual Plant Propagation, (5) Asexual Plant Propagation, (6) Plant Growth Regulators, (7) Chemical Safety, (8) Soils, (9) Plant Growth Media, (10) Fertilizers, (11) Growing Facilities, (12) Indoor Plants, (13) Nursery Stock, (14) Garden Flowers, (15) Fruit and Nut Production, (16) Vegetable Production, (17) Turfgrass Management, (18) Floral Design, (19) Technical Aspects, (20) Community Service, (21) Extra Curricular Activities, (22) Ground Cover, (23) Employment and Customer Relations, and (24) Microcomputers.

Villaquiran, M. (1990). Perceptions of a select jury of Oklahoma State University faculty regarding agricultural research needs of the International Center of Tropical Agriculture in Colombia. Master of Science thesis, Oklahoma State University, Stillwater.

A major purpose of the study was to determine the perceptions of a group of Oklahoma State University professors with knowledge and experience in international agriculture in the developing countries concerning the present strategic plan of The International Center for Tropical Agriculture (CIAT). The research sought to determine: (1) selected demographic characteristics of respondents. (2) Importance of selected types of research. (3) Importance of CIAT being concerned

with selected programs to develop technology without environmental degradation. (4) Importance for CIAT of development of new activities and education. (5) Importance as short and long term goals of CIAT focusing attention on different groups of farmers. (6) Importance for CIAT to study selected new commodities. (7) Importance for CIAT to increase selected institutions building efforts.

Major findings of the study were: (1) the group of professors presented a high degree of international experience; (2) they felt that CIAT should use applied and adaptive rather than basic research; (3) they perceived it to be essential to use technological practices to avoiding environmental degradation especially from chemical inputs and inappropriate land use; (4) CIAT should focus research efforts on low, marginal and medium farmers; (5) respondents agreed that new activities such as: on-the-job-training, graduate agricultural links, economic and rural sociological research, and extension programs will be beneficial to reinforce the 1990's CIAT program; (6) new commodities, such tropical fruits and vegetables should be considered; (7) more research efforts in post-harvest technologies and on-farm research are needed.

PENNSYLVANIA

Bruening, T. H. & Hoover, T. S. (1990). Impact of personal life factors on the effectiveness and satisfaction of teachers. (Staff Study). The Pennsylvania State University, University Park.

The purpose of this study was to determine if the factors identified by Pajak and Blase (1989) can be used to explain the effectiveness and job satisfaction of secondary agricultural instructors.

The population for the study consisted of all secondary agricultural education teachers in the United States. An instrument was developed which consisted of three scales to measure teacher effectiveness, job satisfaction, and the Pajak and Blase personal life factors.

The data were collected using the self-administered instrument over a 9-week period during the spring 1990. An initial and three follow-up mailings yielded 279 usable responses (an 81% return rate).

The mean age for the sample was 38 years. Slightly over 90% of the teachers were males. Over 87% were married and 76% had children. Nearly 49% of the teachers have a master's degree. These findings are in contrast with the Pajak and Blase (1989) study which found that 67% of the teachers were female, 76% were married and 65% had children. Agricultural educators reported 12 years of teaching experience, while the Pajak and Blase sample had 9 years of teaching experience. More than 37% of the agricultural education teachers reported having another job in addition to teaching. Teachers who had a job other than teaching spent an average of 16 hours a week during the school year and almost 30 hours a week during the summer employed in those jobs.

Agricultural education teachers in this study ranked their fulfillment from teaching and satisfaction from teaching as being most influential. Conversely, in the Pajak and Blase study, being a parent and fulfillment from teaching had the most negative influence. However, agricultural education teachers indicated their financial situation and being married had the most negative influence on their performance as teachers.

Bruening, T. H. & Rollins, T. J. (1990). Perceptions of Pennsylvania farm operators regarding selected soil and water conservation practices. (Staff Study). The Pennsylvania State University, University Park.

The purpose of this research was to determine the perceptions farmers held about management practices and solutions to pollution problems. In addition, this study sought to broaden the knowledge base about sources of information farm operators use when confronted with environmental issues. Seven hundred farm operators were randomly selected to receive questionnaires in March of 1990.

As a whole, respondents perceived that water pollution is a problem in the Chesapeake Bay. Farm operators also indicated that more technical information should be produced so they will know how to use less fertilizer. The respondents indicated that the management of fertilizers is important and clinics should be held to increase farmer understanding about fertilizers. Farmers did not agree that they apply too much manure per acre and were opposed to a certification test for nutrient application. Farm operators did not feel that environmental standards must be relaxed to achieve economic growth.

Most farmers indicated they have either implemented soil conservation practices on their farms or they didn't think they had an erosion problem. When implementing conservation practices, education, technical, and financial assistance would be greater motivating factors than legislative mandates.

The single source of information which farm operators felt was most useful were educational activities such as on-farm consultation and farm demonstrations. The second most-useful source of information was printed materials including newsletters, magazines, and manuals. Although audio-visual sources were rated least useful, farmers indicated a preference for video tapes, photographs, and charts over television, radio and slides. Human resources indicated by farm operators to be the most useful were the Soil Conservation Service, county Extension service, Penn State University specialists, and county conservation districts. The Environmental Protection Agency and the Department of Environmental Resources were the two least useful human resources identified by farm operators.

Carroll, P. J. (1989). Determining staff development needs of field-based 4-H professionals in Pennsylvania. Master of Education paper, The Pennsylvania State University, University Park.

The study was designed to determine training needs of Pennsylvania 4-H agents with respect to the youth at risk initiative.

A questionnaire, based on 25 professional competencies derived form the 4-H Professional Research and Knowledge Taxonomy (4-H PRK) and two skills relating to "youth at risk" programming, was mailed to 141 agents in the 67 counties of the Commonwealth as a census of all field-based 4-H professionals in Pennsylvania. Based on a return rate of 84% and a final N of 138, data were analyzed for the 116 respondents.

The mean for all 27 skills, from a seven point Licker scale with ranges from 0 (no ability) to 6 (extremely great ability), over all respondents (N=116) was 3.72. Respondents perceived themselves as least skilled in dealing with legal concerns of volunteers (mean = 2.37). Respondents perceived themselves as most skilled in using interpersonal communication (mean = 4.52). In general, competence in those skills relating to youth issues programming was perceived as lower than other skills, while ability to perform skills typically required of an extension educator was higher.

Based on the study findings, it was concluded that field-based 4-H staff in Pennsylvania definitely had staff development needs in areas relating to youth issues programming and the implications involved with it. Rather than learning specific, skills, field staff simply seemed to need clarification from the extension administration on what they as agents were expected to do with "youth at risk" programming.

Recommendations from the study dealt with increasing the visibility of 4-H PRK, encouraging all field staff with 4-H responsibilities to attend 4-H in-services, and communicating to field staff more clearly extension administration's views and expectations pertaining to program changes.

Fries, L. A. (1990). School-age child care: A needs assessment in the Waynesboro Area School District. Master of Education paper, The Pennsylvania State University, University Park.

This study had two purposes: 1) to develop and conduct a needs assessment for school-age child care programs in Waynesboro (PA) Area School District, and 2) to provide this information to the school district.

The objectives of the study were 1) to determine parents' perception of the need for school-age child care programs, 2) to determine child care and youth-serving professionals' perception of the need for school-age child care, 3) to determine the number of school-age child care programs offered in the community, and 4) to determine child care and youth-serving professionals' attitudes toward becoming involved in school-age child care programs.

The data were obtained by a mailed questionnaire to a randomly selected sample of 369 parents in Waynesboro (PA) Area School District's elementary schools, grades one through six. The response rate was 58 percent. Data were obtained from child care and youth-serving professionals in the Waynesboro community by means of telephone interviews. Twelve organizations participated in this part of the study. This study indicated parents perceived a moderate need for school-age child care programs. The data revealed that of the respondents presently making such arrangements, many of them must use several different care arrangements and providers to meet their needs. The decision of whether or not to use a school age child care program if one were offered appeared to depend upon factors such as how it would be structured, at what times it would be offered, and at what cost.

This study indicated a moderate to high need for school-age child care programs as perceived by child care and youth-serving professionals. Currently, several organizations/programs offering child care for school-age children in the community. However, they seem to be unaware of one another and operate independently of one another. In addition, they are limited in the services they can provide due to space and staff. This population perceived an increasing demand for school-age child care.

Hall, D. E. (1990). Technical agricultural competency advising. (Staff Study). The Pennsylvania State University, University Park.

The purpose of this study was: 1) to develop a computerized inventory template of basic technical agricultural competencies, 2) to develop a template of competencies taught in introductory agricultural courses in the College of Agriculture, and 3) to develop a program that will compare the two templates and recommend courses accordingly. The competency inventory was based on Williams' Computer Enhanced Vocational Program Planning Data Base. This composite list consists of some 1,527 agricultural competencies needed to teach secondary agricultural education, written by committees consisting of agricultural education teachers and representatives from agriculture production/business. The inventory is arranged by subject matter units and is taken using a Macintosh computer. The program functions by asking the students to rate their perceptions of their experiences within each individual competency.

The second part of the project developed a template of competencies being taught in introductory courses within each department in the College of Agriculture. This course competency data bank was developed by course instructors. The final part of the program recommends courses in descending order by the number of competencies a student could gain from their "no experience" list. This recommendation enables students to have a prescribed list of suggested courses. The program also enables students to recognize that they may need to seek other means to gain needed competency experience in addition to coursework.

All incoming undergraduates in the ag ed major will be required to use the program. This Macintosh software program is available to all departments within the College of Agriculture to be used in assessing the basic technical agricultural competencies of their students. This program identifies general competencies possessed and needed by students seeking degrees in agriculture.

Hall, D. E. (1990). Factors related to the participation of Pennsylvania agricultural education teachers in professional development activities. Ph.D. thesis, The Pennsylvania State University, University Park.

The primary purpose of this study was to examine factors related to the participation of Pennsylvania agricultural education teachers in professional development activities. Specific objectives dealt with describing the relationship or differences between participation in professional development activities, professional attitude, and 22 selected demographic factors. A questionnaire was developed and mailed to the population of 291 agricultural education teachers as listed in the Directory for Agricultural Education in Pennsylvania 1989-90. The instrument gathered data in four areas: professional development

participation, professional attitude, demographics, and perceptions of professional development activities. A 73.9 percent usable response was received.

Professional attitude and seven of the 22 selected demographic factors had a significant relationship to the participation of Pennsylvania agricultural education teachers in professional development activities. Professional attitude had a positive relationship with participation. Six of the seven selected demographic factors also showed a positive relationship. Those six included: former FFA membership, length of teaching contract, financial contribution of a teacher's local school district toward Penn State's Professional/Technical Education Institute, financial contribution of a teacher's local school district toward inservice, financial contribution of a teacher's local school district toward graduate credit, and having children who are teachers. The only factor to show a negative relationship to participation was having a full-time summer job away from the school in addition to teaching agricultural education.

A multiple regression equation revealed three of the factors that previously showed individual significance and six new factors interrelated in a significant fashion with the participation index. This further emphasized the complex nature of this research.

Hoover, T. S. (1990). Enrollment issues and recruitment practices in agricultural education programs. Ph.D. thesis, The Pennsylvania State University, University Park.

This study investigated factors that impacted on tudents' decision to enroll in agricultural education and join the FFA. A total of 540 junior and senior high school students participated in a national study that provided sociodemographic information and perceptions about agricultural education and the FFA.

There appears to be a dichotomous but consistent perception about agricultural education and the FFA. Future or current enrollees think that agricultural education will benefit them later in life, were influenced by others to enroll, and maintain a positive image about agricultural education. However, future or current non-enrollees see no future value in enrolling, were influenced by significant others not to enroll, and feel agricultural education is primarily for males with a farm background. Evidence suggests that perceptions about agricultural education and the FFA remain constant once they are formed, thereby supporting the need to "educate" youth about agriculture before they make critical enrollment decisions.

Also investigated were frequently used and successful recruitment practices currently used to attract and retain students into agricultural education programs at local and state levels. Practices currently used to recruit minority and non-traditional students into agricultural education were also investigated. Seventy-four teachers from 24 states participated in the study by providing specific recruitment activities in use at the local level.

The most successful recruitment practices were the use of FFA activities and materials, making eighth grade recruitment presentations, and contacting junior high students. Conversely, barriers to enrollment were found to be much the same in all states represented in the study. Agriculture's farming image and the perception of agricultural education is a significant problem. Although many teachers are expanding their programs to reflect innovative and technological advances in agriculture, scheduling conflicts and increased academic requirements remain dominant barriers to enrollment.

Hoover, T. S. & Bruening, T. H. (1990). Commitment of Pennsylvania vocational educators to student organizations. (Staff Study). The Pennsylvania State University, University Park.

This study investigated the degree of commitment of Pennsylvania vocational educators to student organizations. The target population included all Pennsylvania secondary agricultural educators, occupational home economics teachers, automotive instructors, and carpentry instructors. These teachers were selected because they advise three of the oldest and largest vocational student organizations (FFA, FHA and VICA). Adult education instructors were excluded from the population. A stratified random sample consisting of 161 secondary agricultural educators, 131 occupational home economics teachers, 86 automotive instructors, and 70 carpentry instructors was chosen for the study.

Of the 336 teachers who responded (75% return rate), 78% were male. The mean age of the teachers was 43 years, and they taught vocational education a mean of 14 years. Teachers reported that a mean of 33 students were enrolled in their programs and that 60% of the students enrolled in their courses joined Vocational Student Organizations (VSOs). However, 51 teachers indicated they did not have any VSO members.

The best indicator of commitment to student organizations is vocational student organization membership rate. Agricultural educators reported the highest VSO membership rate (73%), while home economics and carpentry instructors reported 64% and 40% VSO membership rates, respectively. Automotive instructors reported the lowest VSO membership rate (36%).

Those vocational instructors who were advisors during the 1989-90 school year were significantly more committed to student organizations than those teachers who did not advise. Agricultural education teachers, carpentry and home economics teachers are significantly more committed to student organizations than automotive instructors.

Johnson, S. S. (1990). Factors affecting enrollment trends in Pennsylvania agricultural education programs. Master's thesis, The Pennsylvania State University, University Park.

The purpose of this study was to identify factors which affect enrollment in agricultural education at the secondary level. The study was conducted in two parts. Part I focused on factors that influenced students' decision to enroll in agricultural education at the secondary level. Part II examined 64 recruitment and retention practices agricultural education teachers perceived to be effective and frequently used in their local programs.

Purposive sampling was used to insure geographic and demographic representation of "good" agricultural education programs throughout Pennsylvania. Sociodemographic information, occupational and educational goals, and agricultural education perceptions were provided by 200 student participating in Part I. In addition, 12 agricultural education teachers and 20 guidance counselors from the 13 participating schools identified factors that they perceived as impacting students' decision to enroll in agricultural education. Fifty teachers in Part II of the study identified successful recruitment and retention practices they frequently used to attract and retain students. Teachers also provided information regarding recruitment of minority students.

The majority of current and future agricultural education enrollees were white males from rural areas who had less than a B (3.0) academic average. However, regardless of enrollment status or grade level, similar factors were found to influence students' enrollment decision. The most influential factors was whether or not agricultural education was perceived to be beneficial to students' future. Students were also influenced by their image of agricultural education, by peers and adults, and the impact of school standards and requirements.

Teachers indicated FFA activities were the most frequently used recruitment and retention practices. However, they perceived classroom related activities as most effective tools in recruiting and retaining students.

Nti, N. O. (1990). The rural Ghanaian women's game. Master of Education paper, The Pennsylvania State University, University Park.

The bulk of food production, processing, and marketing is done by women in rural Ghana and yet very often their contributions are ignored in policy making. Professionals who deal with rural women also tend to ignore the special problems women face as mothers and wives as well as major economic producers. While some effort has been made to address problems facing both rural Ghanaian women and men more efforts have to be made in addressing the special problems of women.

The purpose of the project was to develop a simulation game that will accurately depict life in rural Ghana and highlight the problems faced by women in rural Ghana. Rural Ghanaian Women's Game was

developed to be used in orientation programs for foreigners who want to work in rural Ghana. The game can also be used in training new extension agents, rural development and health professionals, and cooperative officers in Ghana.

The game was developed and tuned at a simulation game development workshop and evaluated by both members of the workshop and panel of reviewers. When a simulation game is used as a teaching tool, students acquire knowledge as a result of participating in the simulation game. Testing for knowledge acquired can be the focus of future research. Testing and adapting the game to suit Ghanaian players can also be done in the future.

Radhakrishna, R. B. (1990). Time management and job performance of county extension directors. Ph.D. thesis, The Pennsylvania State University, University Park.

The primary purpose of the study was to examine the time management practices of Pennsylvania county extension directors (CEDs) and to analyze the relationships between time management, job performance and select demographic variables. A secondary purpose was to determine the congruency among self (CED), superior or Assistant Regional Director (ARD), and subordinate (agent) appraisals of CED job performance.

The design for the study was descriptive-correlational research. The target population for the study consisted of full-time extension personnel employed by Penn State Cooperative Extension. Fifty-two CEDs and 89 extension agents were randomly selected following a combination of cluster and stratified random sampling procedures. In addition, the five assistants to the five regional directors (ARDs) were also included in the study to assess CED job performance. The Extension Time Management Index (ETMI) and the County Extension Director Job Performance Index (CEDJPI) were developed by the researcher.

The CEDs generally "agreed" or "strongly agreed" with the seven CED job performance dimensions. The mean scores ranged from a low of 3.52 (supervision dimension) to a high of 4.38 (budget dimension). The CEDs perceived themselves to perform their CED job responsibilities at a relatively high level. Significant relationships were found between five time management and seven CED job performance dimensions. Further, a significant relationship ($r = .64$, $p < .001$) was found between the overall CED job performance score and the overall time management score. This meant that CEDs who scored high on time management likewise scored high on job performance, suggesting that those CEDs who perceived themselves to managed time well also perceived themselves to perform better in their CED job responsibilities. Therefore, it was concluded that management of time is one key influence on managerial performance. The findings revealed general agreement among self (CED), superior (ARD), and subordinate appraisals of CED job performance. The coefficient of concordance between self, superior and subordinate rankings was very high ($W = .84$).

Stratton, D. S. (1989). The development of computerized agriculture and science career assessment programs. Master of Education paper, The Pennsylvania State University.

It is very ironic that today, when the U.S. is witnessing it's finest hour of achievement, our universities are coping with serious problems of recruiting quality students and maintaining academic preeminence. Severe shortages are occurring in professional scientists specializing in food and agriculture sciences. The educational system today requires sixteen to twenty years of education before youth can enter into a scientific field. Therefore immediate efforts must begin to recruit more high quality youth into agriculture if we are to continue our advancements in technology.

Since students are very interested in computers today, an interest inventory was created that could be administered to the student with the aid of a computer. At the end of the program, a score and interpretation of the score is displayed to the student. Visual graphics and illustrations help to captivate the student and provide an educational and enjoyable experience that may be remembered later in life.

This program was field tested in three locations with positive results. Students found the program to be enjoyable and many of them learned about new careers in agriculture that they never know existed before.

Future research needs to be done on a validity of the science interest inventory and monitoring students who have completed the interest inventories for help in career decisions.

Vahoviak, G. R. (1990). Personal development in aquaculture. Pennsylvania Department of Education, Harrisburg.

Aquaculture (the science of producing aquatic crops) is rapidly expanding within agriculture, and as a result holds a prominent role in the professional development needs of vocational agriculture teachers. The goal of this project was to identify, modify and make available to teachers the methods and resources needed to initiate aquaculture into existing agricultural education programs. Extensive inservice programming was made available to teachers emphasizing development of indoor recirculating systems as a means to bring aquaculture into the classroom.

As a result of this project, at least 20 programs throughout Pennsylvania have implemented aquaculture systems. This number is expected to double during 1990-91 due to inservice programs for teachers during 1989-90. For this reason, funding for continuation of this project was sought and granted (see projects in progress). A comprehensive, competency-based curriculum guide and reference manuals were produced and distributed. A prototype system was developed within a local high school agriculture program and served as a basis for the majority of inservice programs and reference manuals.

Vallely, B. J. (1990). Planning considerations for pond aquaculture in Pennsylvania. Master of Education paper, The Pennsylvania University, University Park.

If approached correctly, aquaculture can be profitable. It should be treated in the same manner as any other agricultural enterprise. An on-farm aquaculture program must begin with fundamental instruction in the concept of fish as a crop and management of the aquatic environment in terms of food, oxygen, and water quality requirements. Pennsylvania pond owners are seeking answers to these management considerations; however, extension agents have little material available from the Penn State College of Agriculture to provide these clients.

This project is a compilation of existing aquaculture planning information which offers extension agents guidelines and references for planning a pond aquaculture venture in Pennsylvania. For aquaculture to reach its full potential, greatly expanded research and extension programs, modeled after those available to traditional agriculture, must be implemented.

TENNESSEE

Lamberth, E. E. & Byler, B. L. (1990). 1988-89 Follow-up study of alumni of the School of Agriculture at Tennessee Technological University. (Staff Study). Research Report Series No. 14. Tennessee Technological University.

The purpose of the study was to analyze the professional status of alumni of the School of Agriculture at Tennessee Technological University for the years 1987-1988, 1985-1986, 1984-1985, 1982-1982, 1977-1978, 1972-1973, and 1967-1968.

The questionnaire used in collecting data was developed by the authors and was revised to conform with suggestions made by the faculty of the School of Agriculture. Mailing labels for graduates were obtained from the Tennessee Tech Alumni Office. For the years selected to study, there were 271 graduates of the School of Agriculture. The questionnaire, a letter of instruction, and a self-addressed stamped envelope were mailed to each graduate. Approximately nine weeks, eleven weeks, and sixteen weeks after mailing the questionnaire, follow-up letters were sent to each graduate who had not returned the questionnaire. One hundred and fifty-five (57 percent) returned usable questionnaires.

The findings were: 1) A majority of the graduates (68 percent) have spent most of their lives living in the country or in small towns; 2) Most of the graduates (54 percent) studied agricultural education in high school; 3) Parents exerted a great deal of influence on the graduates in choosing a college major; 4) Graduates were active in organizations; 5) Many of the graduates had continued their education with 19 percent holding one or more advanced degrees and 19 percent completing some academic work beyond their B.S. degree; 6) A majority of the graduates (73 percent) were employed in agricultural occupations related to their majors at Tennessee Tech; 7) Most of the graduates (85 percent) stayed in Tennessee to work; 8) The current average salary of the graduates was $27,406; 9) Management, education, and sales were the most common job tasks performed by the graduates; 10) The respondents felt that their undergraduate education at Tennessee Tech was beneficial to their current professional endeavors and important in performing their current professional responsibilities; 11) Strengths of the agricultural program, according to the graduates, where faculty showed personal interest in the students, instructors were of good quality, and good student advisement was provided; 12) Improvements suggested by the graduates were construct a building for the School of Agriculture, increase quality of placement services, and include more technical agricultural experiences.

TEXAS

Southwest Texas State University

Dillingham, J. M., Davis, B., Longley, G., Raffeld, P.C., & Shell, L.R. (1990). A study of the aquaculture industry in Texas to assist in establishing aquaculture as a course offering in agricultural science and technology. Texas Education Agency: Austin, Southwest Texas State University, San Marcos.

The purpose of this study was to review existing curriculum and to establish a basis on which to develop an aquaculture curriculum for secondary students in Texas. Objectives included: 1) identify skills needed for successful employment in the aquaculture industry, 2) locate and review aquaculture research results, and 3) locate and review curriculum material.

Data were collected by two surveys administered to Texas education and industry personnel. Agricultural science teachers were surveyed to establish the status of aquaculture in school districts, and crawfish and catfish producers were surveyed to validate respective task analyses. Data were reported in frequency tables to identify the relative importance and frequency of the perceived status of industry in school districts and the importance and frequency of performance of tasks.

An aquaculture industry curriculum workshop was sponsored to establish the needs of industry personnel prior to advancing with the development activities. Material included in the curriculum development activities were gathered by on-site visits and by workshops to synthesize the needs of both agricultural science and technology teachers and aquaculture industry personnel.

Findings of this study were that tasks were performed with various frequencies of performance, tasks were generally very important, and that learning difficulty of tasks were mostly of medium difficulty but ranged from easy to difficult.

Aquaculture curriculum for secondary students in Texas is limited but will become more available as the aquaculture industry expands. An aquaculture curriculum is needed to prepare an educated workforce to enter emerging aquaculture related industries.

Texas A&M University, College Station

Breazeale, D. E. (1989). Perceptions and attitudes of farmers and ranchers concerning Texas agricultural extension service computer-based farm management short courses and software. Doctoral dissertation, Texas A&M University, College Station.

The purpose of this study was to determine the perceptions and attitudes of selected farmers and ranchers in Texas concerning the use

and benefits of computer-based farm and ranch management programs sponsored by the Economist-Management Group of the Texas Agricultural Extension Service.

The study was conducted during the first half of 1989. The population consisted of purchasers (purchased TAEX software) and participant/purchasers (attended short course and received software) who were surveyed by a mailed questionnaire. The return rate was 51.7% (n=489). The data were analyzed using descriptive statistics, comparative techniques, and correlation analysis.

The study group had higher levels of education and gross income from farming and ranching than did the general Texas farming and ranching population. Purchasers had higher levels of education and gross off-farm income, and spent more money on computer training than did the participant/purchasers. On the other hand, participant/purchasers reported higher levels of gross on-farm/ranch income and greater satisfaction with the TAEX software than did the purchaser group. Both groups reported above average abilities to modify and incorporate TAEX software into their operations and that they had some influence on other farmers and ranchers to adopt computers. No difference existed between the groups concerning the use of farm business management tools. Positive perceptions toward computer technology were reported by both groups. A "moderate" relationship was found among several of the main variables.

Conclusions and implications were drawn based on the findings and recommendations were forwarded to the Texas Agricultural Extension Service.

Marshall, T. E. (1990). Analysis of enrollment in agricultural science and membership in the FFA in Texas. Doctoral dissertation, Texas A&M University, College Station.

The purpose of this study was to examine relationships among selected characteristics of agricultural science students in Texas, their reasons for enrolling in agricultural science classes, their reasons for joining or not joining the FFA, and their perceptions concerning the requirements of Supervised Agricultural Experience Programs (SAEP).

The population was all secondary agricultural science students in Texas in the fall of 1989. A random sample of agricultural science programs was selected and surveyed using a data collection instrument.

Data were analyzed using descriptive statistics, crosstabulations with chi square and Cramer's V statistics, factor analysis, and analysis of variance.

The major findings were as follows: (1) Enrollment in agricultural science by gender and ethnicity was disproportionate to enrollment by gender and ethnicity in secondary schools statewide; (2) A low relationship existed between year of first enrollment in agriculture and gender, place of residence, and type of SAEP conducted; (3) A negligible relationship existed between year of first enrollment in

agriculture and ethnicity; (4) A negligible relationship existed between status of FFA membership and ethnicity and gender; (5) Secondary students who enrolled did so because of the characteristics of the class and because they believed that enrollment enhanced their identity; (6) Secondary students did not enroll because of the influence of significant others or because of circumstantial reasons; (7) Agricultural science students who joined the FFA did so primarily because membership enhanced their identity; to a lesser degree, they joined because of activities offered by the FFA; (8) Overall, no single factor was identified as to why some agricultural science students did not join the FFA.

Mursidi, T. R. S. Attitudes of small-scale fishermen in Pangandaran, Indonesia toward selected governmental programs, the occupation of fishing, and risk. Doctoral dissertation, Texas A&M University, College Station.

Selected problems of small-scale fishermen in Indonesia related to governmental assistance, fishing as an occupation, and their willingness to take risks associated with fishing practices were analyzed.

The population of 979 small-scale fishermen in Sub-district Pangandaran, Ciamis, West Java, Indonesia was studied from May 1989 to August 1989. A stratified random sample of 126 fishermen consisting of small (<10 gross tons) boat owners and workers on boats was interviewed personally. Attitude scales were constructed using factor analysis. Cronbach's alpha values ranged from 0.64 to 0.94. Demographic characteristics were analyzed using descriptive, comparative, and correlational statistics. Linear and nonlinear regression analyses determined relationships among independent variables and fishermen's aforementioned attitudes.

Boat owners had significantly higher means of age, family size, experience, frequency of contacts with extension agents, and length of time of residence in the current area than workers. The educational level of workers on fishing boats was higher than that of boat owners. Boat owners had more favorable attitudes toward selected governmental programs, toward the occupation of fishing, and toward risk measured using a semantic differential. However, when measured on choices of assured or risky incomes in a risk-taking scenario, neither group revealed different attitudes toward risk.

Attitudes of fishermen toward selected governmental programs related positively to age and frequency of contact with extension agents. Nonlinear regression explained 33% of the variance. Attitudes of fishermen toward fishing as an occupation related positively to experience. Nonlinear regression explained 58% of the variance. Attitudes of fishermen toward risk, measured using a semantic differential, related negatively to age and family size, but related positively to frequency of contact with extension agents. Nonlinear regression explained 60% of the variance. Coefficients of absolute risk

aversion were positively related to age and family size. Nonlinear regression explained 30% of the variance.

Terry, H. R. (1990). Assistance needed for elementary teachers in Texas to implement programs of agricultural literacy. Doctoral dissertation, Texas A&M University, College Station.

The purposes of this study were to assess fourth grade teachers' understanding and use of agricultural concepts in their teaching and to determine if assistance is needed to help teachers implement programs of agricultural literacy in the classes they teach.

The population was approximately 11,600 fourth grade teachers in Texas during the 1989-90 school year. A cluster sampling technique was used to select a random sample of 300 schools yielding an expected sample size of 800 fourth grade teachers. The instrument used to collect the data was a mailed questionnaire containing 97 items divided into five parts. Data were analyzed using descriptive statistics, pearson product moment correlation, t-test, and analysis of variance.

The major findings were as follows: (1) The teacher's scores on the test of knowledge about agriculture ranged from 5% (1/20) to 85% (17/20) with a mean score of 48.4%; (2) Over 90% of the teachers perceived agriculture to be limited to farming and ranching; (3) The teachers taught agriculture an average of 16 hours per year; (4) The resource used most for teaching about agriculture was chapters related to agriculture in textbooks; (5) Teachers were more interested less structured types of assistance such as receiving a list of materials and other resources than in more structured activities such as workshops and graduate courses for credit; (6) Teachers with experience in some type of agriculture course or program had more accurate perceptions and greater knowledge of agricultural, and they used a greater number of resources to teach agriculture; (7) Teachers with a farm or ranch background had greater knowledge of agriculture, taught agriculture more hours during the year, taught more agricultural topics, used more agricultural professionals as resource persons, and had their classes participate in more programs related to agriculture.

Weeks, W. G. (1989). A comparison of the Houston Livestock Show and Rodeo scholarship program with a non-targeted scholarship program. Doctoral dissertation, Texas A&M University, College Station.

The purpose of the study was to compare recipients of Houston Livestock Show and Rodeo scholarships (a targeted agricultural scholarship program) to recipients of Opportunity Awards (a non-targeted scholarship program) at Texas A&M University.

The study was conducted during April and May of 1989. A random sample of 50 was drawn from each group of scholarship recipients from the years 1978, 1979, and 1980 who returned an initial questionnaire and

agreed to participate in a follow-up study. A telephone survey was used to collect the data. Descriptive statistics were used to report personal characteristics. Frequencies were used to formulate a profile of a "typical" scholarship recipient. Where interval data were obtained, t values were calculated to determine if significant differences existed between group mean responses.

The groups were found to be different in terms of: (1) Academic aptitude (SAT score); (2) Current residence location (rural vs. metro); (3) Number of children born to married participants; (4) Level of collegiate participation; (5) Level of collegiate leadership; (6) Level of community participation; (7) Level of community leadership; (8) Agricultural perception.

Recipients of Houston Livestock Show and Rodeo scholarships scored significantly higher in collegiate participation, collegiate leadership, community participation, community leadership, and agricultural perception. Opportunity Award recipients tended to live in metropolitan areas, while recipients of Houston Livestock Show and Rodeo scholarships resided in rural areas. It was concluded that the Houston Livestock Show and Rodeo should continue to target its scholarships in agriculture if the factors listed above are desired outcomes of the scholarship program.

Abdirizak, H. A. (1989). Development of a training strategy to increase farm production in Somalia. Master of Science report, Utah State University, Logan.

This is a plan intended to help farming communities improve their farm production. It consists of a combination of developmental and institutional programs. The program is planned to develop the abilities and skills of the staff in the agricultural organizations including the Extension Service, Agricultural Development Cooperation, and Machinery Service Department. It should also assist in training farmers to solve their problem of low farm production.

Under the proposed strategy, the problem of the clients (farmers) is identified to be low farm production due to the lack of application of farm inputs and poor farming practices. The development organizations lack timely supply of farm inputs, proper recommendations for input application and provision of support services to farmers.

Thus, the programmer attempts to develop a strategic training program to improve the government service provided to farmers and farmers ability to apply farm inputs properly thus increasing farm production.

After recognizing the desired situation, the writer has decided to implement different training processes to attain the goal of increased farm production. The success of the program will depend on how well the Ministry of Agriculture supports implementation of the total program and client participation. The application of the knowledge and skills acquired from the training are useful means to achieve the goal. The program is set up in a way to suit the best needs and structures of the development agencies in the Ministry of Agriculture in their service to farmers.

Bachman, E. W. (1990). An examination of youth at risk situation in Cache Valley. Master of Science report, Utah State University, Logan.

The youth of today are at risk in six major areas according to the National Collaboration for Youth. They are illiteracy, unemployment, substance abuse, school dropout, teen pregnancy, and juvenile crime. Each area is examined separately although they are very closely related, and at risk youth usually have problems in more than one area. Modern technology and a rapidly changing society demand different and improved methods of parenting. An awareness of the problem and a feeling of responsibility on the part of the community members is needed. A report card on the status of the youth in Cache Valley and a directory of services available are included.

Canto, J. A. (1989). Broadleaf and foxtail control with DPXM6316 and primisulfuron in corn. Master of Science report, Utah State University, Logan.

DPX-M6316 and primisulfuron, at two different rates and combined with atrazine, were tested for pigweed, lambsquarters, and foxtail control in field corn at Logan, Utah. Plots were 10 by 50 feet in size with four replications arranged in a randomized complete block design. Herbicide treatments were DPX-M6316 ai/A .0078 and .0156; DPX-M6316 ai/a .0078 combined with atrazine ai? 0.5; primisulfuron ai/A .018 and .0359; and primisulfuron .0359 combined with atrazine 1.0. Treatments were applied broadcast with a CO2 pressurized eight-nozzle bicycle sprayer delivering 16gpa at 16 psi on July 21, 1988 to 2 to 4 inches pigweed and lambsquarters, to 0 to 1 inch foxtail, and to 6-leaf corn. corn, var. Grand Valley 134L, was planted May 6, 1988 in a Silt loam soil with 2.6 percent organic matter and 8.3 pH. Weeds counts and visual crop injury ratings were made July 12, 1988.

No corn injury was observed with any treatment. The treatment primisulfuron ai/A .0359 combined with atrazine ai/A 1.0 was the only treatment that controlled all three weeds above 95 percent. Pigweed and lambsquarters control was 86 percent or greater with all treatments.

The writer recommended an extension strategy that is a refinement of the training and visit methodology sponsored by World Bank in Panama. Farming System Research and Extension Methods can be used profitably in Panama to compensate for too little resources and too much to do. The applied research on farm trials, and demonstrations now used in Panama can be strengthened by better extension agent follow-up.

Egan, G. H. (1989). The feasibility of concurrent enrollment of high school students in college-level introductory plant science. Master of Science thesis, Utah State University, Logan.

The purpose of this study was to test the feasibility of allowing concurrent enrollment in the College of Agriculture to selected high schools in the state of Utah. "Introduction to Agricultural Plant Science" (Plant Science 100) was the course being tested. A purposive sampling technique was used to identify four vocational agriculture programs to participate. There were 86 high school students in the study and 38 college students who took the course on campus at Utah State University.

In this study, 47.7 percent of the high school students passed the course with a 70 percent average or above. Comparisons between high school and college student performance showed a marked difference in percentage points accumulated on exams and the final, with the college students performing more consistently.

Farah, A. A. (1989). Visual ratings: an estimate of weed control. Master of Science report, Utah State University, Logan.

Weeds are a present threat to food production. Although there are many different control methods, weeds continue to multiply and infest new farm lands. To assess weed infestations, farmers and change agents, alike, first carry out visual evaluations of the situation. To reach judgment of conclusions, evaluators often rely on their visual diagnosis of field problems, such as weed pressure on a particular area or crop. similar visual ratings are carried out to evaluate the weed killing ability of a herbicide. But are visual evaluations on weed infestations accurate? Are weed specialists better at visual evaluations than subjects with little experience in weed science? Does visual evaluation accuracy improve with practice? To seek answers to these questions, a series of trials were conducted in a simulated situation. four different levels of a hypothetical herbicide with four replications were used in each trial. In each replication, a hypothetical number of weed plants (about 100), represented by colored triangles, was drawn first on the transparency sheet representing the control lot. Each plot in a replication was then represented by a separate transparency sheet that showed the number of weed plants present after the hypothetical herbicide level. The set of transparencies were known to the two separate groups participating in the study, a group who had previous weed control evaluation experience and an inexperienced group. At the beginning of each replication presentation, the evaluators were shown the transparency representing the control plot of that replication. Depending on the proportion of weed population of each of the four transparencies of the same replication to the control transparency (0 percent control), the evaluators were told to make their visual estimations on a scale of from 0 to 100 percent control. Their visual ratings were the outcome measures for the study.

Hurst, J. L. (1990). A curriculum for the concurrent enrollment course on Plant Science 100. Master of Science report, Utah State University, Logan.

The purpose of this Plan B project is to develop, in outline form, an workable set of lecture notes to supplement the materials provided by Dr. William Campbell in the Plant Science 100 course. The lecture outline corresponds with teaching objectives for the course on sixteen units of instruction in plant science. Additional transparencies were also added to those that were already available in the professor's teaching units.

The teaching units were made available to other high school agriculture teachers to aid in the instruction of the Plant Science 100 concurrent enrollment course.

Ibrahim, A. A. (1989). Influence of sesame meal (a vegetable protein source available in Somalia) on broiler chick performance. Master of Science thesis, Utah State University, Logan.

The purpose of this study was to evaluate the feeding value of sesame meal as a protein supplement in broiler rations to develop a strategy to encourage Somali farmers to use this locally grown feed. Sesame meal is not presently used to feed poultry in Somalia.

Two trials were conducted for 21 days each in electrically heated battery brooders. In trial I, 480 commercial broiler chicks were randomly assigned to the pens. Three hundred and fifty chicks were assigned in Trial II, 2 weeks later.

With a view to determining the most economical combination of sesame meal and soybean oil meal, analysis of the data suggested that on the basis of cost and chick performance 10.5-15% sesame meal combined with soybean oil meal is the most suitable dietary protein supplement in broiler rations.

A model for the adoption of sesame meal in poultry rations was suggested to include replication of this study in Somalia.

Idow, I. S. Utah 1989 exotic noxious weed survey. Master of Science report, Utah State University, Logan.

The purpose of this study was to conduct a survey of new invading weeds of Utah in 1989 and to compare this survey with the survey done in 1981, to determine how many acres were infested by each of 12 weeds, and to determine geographical distribution of these invading weeds.

This was one of four weed surveys conducted in Utah since 1940. The makeup of noxious and invading weed surveys has changed over time. Twelve weed species were considered in this study, but for comparing the surveys of 1981 and 1989, only 10 weed species were considered. The twelve weed species considered in this study are: black henbane, diffuse knapweed, dyers woad, leafy spurge, medusahead rye, musk thistle, scotch thistle, spotted knapweed, squarrose knapweed, tall whitetop, velvetleaf, and yellow star thistle. Medusahead rye and scotch thistle were not included in the comparison of the 10 weeds surveyed in 1981 and 1989. The information for this included in the comparison of 10 weeds surveyed in 1981 and 1989. The information for this survey was collected form county weed supervisors. Twenty-wight of 29 weed supervisors returned the questionnaires and maps describing the number of infestations and the total number of acres infested in each county.

For both surveys of 1981 and 1989, musk thistle and dyers woad had the largest acres. Musk thistle increased from 27,426 to 425,637 acres from 1981 to 1989, and dyers woad increased from 19,911 to 150,749 acres. Squarrose knapweed increased for 4,091 to 101,325 acres from 1981 to 1989 with average annual increase of 264 percent.

The remaining seven weeds did not appear to increase as substantially as the ones cited above.

Jones, S. L. (1989). The impact of vocational agricultural programs in Utah. Master of Science report, Utah State University, Logan.

There is a lack of current evidence supporting the educational value of summer vocational agriculture programs in Utah. The summer vocational agriculture programs in Utah have been and will continue to be vital to the total preparation of students and in meeting the objectives of vocational agriculture. The specific purposes of this research were to identify the value of the agriculture programs related to educational value, leadership development, opportunity for job-related skill development, and application of skills.

Mire, Y. A. (1989). Use of animal traction in agriculture. Master of Science report, Utah State University, Logan.

The purpose of this study was to determine problem areas, which if resolved, could improve the farmer adoption of animal traction, to understand problems relating to animal maintenance and local artisans that may prevent small farmers from adopting animal traction, and to determine advantages in using animal traction. According to current reports, there are 15 million draft animals in Africa and 110 million draft animals in India. The most common draft animals used are cattle, horses, donkeys, mules, camels, and water buffalo. During interviews conducted during this study, 50 percent of the USU experts questioned said that animal maintenance is a problem, while 100 percent of them said that animal traction is useful for African agriculture. However, 60 percent of the experts responded that a lack of spare parts and raw materials is a big problem. Another 25 percent of the experts stated that inappropriate designs in the construction of needed equipment is a serious problem.

Rwanga, M. (1990). Teachers' perception of the role of state supervisors of vocational agriculture in Utah. Master of Science thesis, Utah State University, Logan.

The purpose of the study was to examine and present descriptive data about the perceptions of teachers of the current and expected roles of state supervisors of vocational agriculture in Utah.

A target population for the study was 64 high school teachers of agricultural education. All teachers were surveyed. They were randomly categorized into two equal groups. One group indicated its perceptions of the roles of state supervisors on the current-role form, while the other group indicated its perceptions on the expected-role form. A 100 percent response was obtained.

Teachers were asked to rate 37 activity statements by indicating the current and expected degrees of authority state and local supervisors had for these activities on a scale of 1 to 7. To simplify

data analysis, these 37 activities were grouped into four major areas: administrative, improvement of instruction, research and evaluation, and public relations.

While the overall ratings for both current and expected roles were not always above midpoint on the scale, the importance of the current roles of state and local supervisors were perceived to be lower than the importance of the expected roles.

Teachers perceive the descending order of importance of the four areas for the state supervisor to be: improvement of instruction, research and evaluation, administrative, and public relations activities. For the expected role, the descending order is: research and evaluation, improvement of instruction, administrative, and public relations activities.

For the current roles of local supervisors, the descending order is as follows: public relations, research and evaluation, administrative, and improvement of instruction activities. On the other hand, the order of importance of the expected roles of local supervisors' activities

Researchers recommend further research as to the kind and scope of supervision practiced at both state and local levels and also to determine the cause for the teachers' low perceptions of the roles of state and local supervisors.

VIRGINIA

Camp, W. G. & Oliver, J. D. (1990). A national study of the supply and demand for teachers of agricultural education in 1989. (Staff Study). Blacksburg: Virginia Polytechnic Institute and State University

This was the 25th annual national study of the supply and demand for teachers of agriculture in the United States. The study is authorized each year by the Professional Recruitment/Public Relations Committee of the Agricultural Education Division of the American Vocational Association.

The study is a population census of all heads of agricultural teacher education programs and state department of education head supervisors of agricultural education in the United States.

The most important conclusion was that there is an emerging and worsening shortage of newly qualified teachers of agriculture, on a nationwide basis.

Camp, W. G., Heath-Camp, B., Barber, J. D., & Talbert, B. A. (1990). A national survey of the induction process for beginning vocational teachers. National Center for Research in Vocational Education (University of California, Berkeley). Blacksburg: Virginia Polytechnic Institute and State University.

This study was a component of a larger, 5-year project funded under a grant from the National Center for Research in Vocational Education, University of California, Berkeley. This study involved the development, validation, field test, and administration of a survey to examine the dynamics and nature of the induction process for first year vocational teachers. It was administered as a mail survey to a national stratified random sample of all first year vocational teachers in the University States during school year 1989-90.

One important finding was that there is a great disparity between induction assistance needed and received by beginning vocational teachers. The primary sources of both negative experiences (detractors) and positive experiences (enhancers) for beginning vocational teachers are from the educational system and from students.

Camp, W. G., Heath-Camp, B., Barber, J. D., & Talbert, B. A. (1990). An intensive study of the induction process for a selected group of first-year vocational teachers. National Center for research in Vocational Education (University of California, Berkeley). Blacksburg: Virginia Polytechnic Institute and State University.

A group of 14 selected beginning vocational teachers from a state in the southern Great Plains. The teachers represented all vocational

service areas at the secondary level. Qualitative data collection techniques included focus group sessions, Nominal Group Technique sessions, individual interviews, numerous personality, style, and other psychological testing both before and after the first year of teaching. In addition, job satisfaction, stress, and teaching style surveys were collected from participants on a weekly basis throughout their first year.

Initial analyses indicate that the participants went through most severe stress and lowest job satisfaction early during the school year and seemed to recover by mid-year. A close correlation between stress and job satisfaction was also found.

This study was a component of a larger, 5-year project funded under a grant from the National Center for Research in Vocational Education, University of California, Berkeley.

Camp, W. G., Heath-Camp, B., & Barber, J. D. (1990). An intensive study of the induction process for a selected group of beginning vocational teachers. National Center for Research in Vocational Education (University of California, Berkeley). Blacksburg: Virginia Polytechnic Institute and State University.

In this study a group of 13 beginning vocational teachers from a 3-state region in the eastern U.S. was selected to represent all vocational service areas and teaching levels of middle school through high school. The teachers were intensively followed up for a 2-year period with focus group sessions, Nominal Group Technique sessions, principal interviews, student interviews, mentor/buddy teacher interviews, and daily/weekly tape-recorded logs.

Major findings include important differences in the nature and dynamics of the induction process for beginning vocational teachers with backgrounds in teacher education programs as compared to teachers whose source of certification is industry experience without teacher education. In general we found that non-teacher education teachers are more mature, more stable, and more reliable. They are surprised by student apathy and the inefficiency of the educational system. Teacher education teachers ten to have fewer problems with curriculum and lesson planning.

This study was a component of a larger, 5-year project funded under a grant from the National Center for Research in Vocational Education, University of California, Berkeley.

Elmer, B. J. (1989). An analysis of certain safety procedures/devices used by agricultural education instructors in the central area of Virginia. Master of Education thesis in Agricultural Education, Virginia State University, Petersburg.

The purpose of this study was to prioritize the safety procedures/devices used in helping to prevent student accidents in the agricultural education laboratory. To achieve this purpose, two objectives were developed.

A survey which included 12 safety procedures/devices was developed in the spring of 1987 and completed by 45 teachers in the central area of Virginia. In the fall of 1989, 40 teachers from the same area completed the same survey. The data collected provided information concerning (1) how they ranked the safety procedures/devices and (2) the amount of emphasis placed on the safety procedures/devices when rated on a three point scale (1= essential, 2= optional, 3= not needed at all).

The findings of the study were as follows: (1) Eight safety procedures/devices were rated essential, (2) four procedures/devices were rated as optional, (3) none of the procedures/devices were rated as not needed at all. Between 1987 and 1989, the central area teachers' emphasis as to the importance of the 12 safety procedures/devices changed only slightly.

Howe, J. D. & Camp, W. G. An alternative approach to the traditional student teaching internship model. (Staff Study). Blacksburg: Virginia Polytechnic Institute and State University.

Two student teachers were placed in an exceptionally strong student teaching site with very well qualified cooperating teachers. The student teachers were not enrolled in pre-service teaching methods instruction. Rather they were given an additional 5 weeks of internship during which the cooperating teachers agreed to provide field-based "methods" observation and individualized "methods" instruction.

We found that in spite of the intention of the cooperating teachers and the student teachers to engage in "methods" experiences and instruction, such instruction did not occur with any degree of substance or regularity. The teachers and the student teachers were overcome by time-constraints and work requirements on a daily basis to the exclusion of effective pedagogical training. The result was frustration on the part of the student teachers because they did not understand the process of lesson planning and on the part of the cooperating teachers because of their charges' lack of ability to plan instruction.

McMillion, M. B. (1990). Student perception of the educational value of school-based enterprises and home or family-based enterprises. Blacksburg: Virginia Polytechnic Institute and State University.

The practical application of entrepreneurship may occur at school facilities under the supervision of the teacher or away from school under the direct supervision of a family member or other person. What is taught and learned in the two situations differ. Student perception of the two arrangements in terms of the following factors will be reported: relatedness to classroom instruction, quality of the experience, skills used (money management, math, reading, problem solving), work autonomy, time required, effect on grades, and amount investment. The study is based upon the data from the Learning from School-based Work experience Project. For information contact Martin B. McMillion, Virginia Tech, (703) 231-8177.

WEST VIRGINIA

Burdette, K. R. (1990). Improving the basic skills of secondary agriculture students in West Virginia. Master of Science thesis, West Virginia University, Morgantown.

This study sought to determine whether students improved their reading and communication skills after completion of an agricultural unit of instruction which was supplemented with specially designed basic skills reinforcement materials. The study also sought to determine student attitudes toward the use of such materials.

The six schools participating in the study were divided into experimental and control groups. Each instructor was provided a set of procedures to follow and the pre-test/post-test for each sophomore student involved. Teachers in the experimental group also received supplemental materials and student survey forms. Both groups were to teach the prepared unit on Biotechnology in Agriculture.

A comparison of pre-test and post-test group average scores indicated that no major changes in basic skills abilities resulted from use of the supplemental materials. However, great variance existed within the experimental group, leading to the belief that other unmeasured factors affected student performance on the pre-test and post-test. Students with high grade point averages showed the greatest change between pre-test and post-test scores. Favorite supplemental exercises of students were the word search, crossword puzzle, and scrambled word. Least liked were the writing of sentences and defining of words. Most students enjoyed the exercises and felt that they made the unit more interesting. Most also felt that the supplemental materials increased their learning of the content material.

Ellis, M. P. (1990). Perceived microcomputer education needs of international students enrolled in the West Virginia University College of Agriculture and Forestry. Master of Science thesis, West Virginia University, Morgantown.

This study was designed to determine the microcomputer competencies possessed and needed by international students enrolled in the West Virginia University College of Agriculture and Forestry.

A questionnaire was used to collect data from 52 international students enrolled during Fall semester, 1989.

The study found that most respondents had completed a Baccalaureate degree before enrolling in the College, had no microcomputer experience prior to enrollment, were planning to return to their home country upon completion of their studies, and would have access to microcomputers should they return to their country. Most reported receiving little or no microcomputer instruction at the University, and perceived the lack of time and equipment as the greatest barriers to learning more about use of microcomputers. Participants perceived their abilities to perform microcomputer skills as low, while

perceiving the importance of being able to perform the skills as high. Skills considered most important included set up and putting the microcomputer into operation, using a printer, keyboarding, loading programs, formatting and copying a disk, and using word processing programs. The highest educational needs of international students were for spreadsheet and statistical applications.

Noah, M. (1990). Benefits and educational needs in home gardening activities as perceived by the rural elderly in Tucker County, West Virginia. Master of Science thesis, West Virginia University, Morgantown.

This study was designed to investigate the benefits and educational needs in home gardening as perceived by a rural, elderly population in West Virginia. Data were obtained through mailed questionnaires from a sample of 250 persons over the age of 60 residing in Tucker County, West Virginia. The questionnaire was designed to determine extent of gardening within the group, motivations for maintaining a garden, sources of gardening information, gardening information needs, and preferred forms of information that might be made available from Extension agents.

Data indicated that more than half the respondents maintain a vegetable garden. Being physically unable was the most common reason for not gardening. Gardeners pursue the activity chiefly for the pleasure derived from it, however, there was a strong negative correlation between the economic importance of gardening and income level. Major informational needs identified included fertilization topics and control of weeds, insects and diseases in the garden. Current sources of new information includes friends, family members, seed catalogs and magazines. New gardening ideas would be most welcome through Extension bulletins and newspaper articles.

Ours, J. L. (1990). Influences of the animal rights movement on animal production agriculture research in land grant institutions as perceived by experiment station directors. Master of Science thesis, West Virginia University, Morgantown.

This study was designed to determine the influences of the animal rights movement on animal production agriculture research at land grant institutions as perceived by experiment station directors. Directors were asked, in their opinions, to identify the five major influences, both positive and negative, that the animal rights movement has had on animal production research at their institutions. From the responses, a questionnaire was developed and directors were asked to rate all influences identified as they pertained to their own institutions.

Results of the study indicated that Northeastern region respondents feel the animal rights movement has impacted somewhat more

negatively on their research programs than do others. The most negative influence reported by directors is that the movement has created a fear among scientists as to what will come next. The most positive influence has been that it has made scientists more aware of their responsibilities in conducting research so the animals are not exposed to harmful or unethical experimental procedures.

Varner-Friddle, L. (1990). West Virginia secondary agriculture teacher's estimates of readability and reading grade level of eleventh grade agriculture education students. Master of Science thesis, West Virginia University, Morgantown.

Major objectives of this study were to determine how accurately teachers of agriculture can predict readability, and to compare teacher estimates of students' reading level with actual reading level.

Data were obtained from ten selected agriculture teachers using a questionnaire and a personal interview. Less than half the teachers correctly estimated the readability of magazine articles, with more teachers overestimating than underestimating the readability. Teachers underestimated the reading grade levels of their students by approximately one and one half years. Relationships between the variables of age, teaching experience, having had a reading course, giving reading assistance to students, and reading aloud in class and teacher ability to estimate readability were low. Negative relationships were found to exist between the two variables of giving students reading assistance and asking students to read aloud in class and estimation of reading grade level.

Yoder, C. (1989). Analysis of 1988 farm worker injuries in West Virginia as reported by agricultural producers. Master of Science thesis, West Virginia University, Morgantown.

Primary objective of this study was to describe the current incidence of farm worker injuries in West Virginia. In addition, selected variables that influence injuries were analyzed.

Data were obtained through use of a mail survey sent to a sample of 1,200 agricultural producers who were asked to provide information regarding farm operations and injuries which occurred during the past year.

Hours of labor on the farm and number of acres farmed were found to be significant influences on the number of injuries occurring. Nearly 10% of the farms surveyed had experienced an injury, most resulting from cuts and bruises to the head, finger, or leg which required medical attention. As farm worker age increased, the severity of injuries increased. Injuries result most frequently while the farm worker is performing maintenance, service and repair on machinery.

WISCONSIN

Andrews, G. L. (1990). An assessment of the interaction of selected personal characteristics and perceptions of selected aspects of job satisfaction by Wisconsin Cooperative Extension Agricultural Agents. Master of Science thesis, University of Wisconsin, River Falls.

The primary purpose of this study was to assess selected personal characteristics of age and years of extension experience among University of Wisconsin Cooperative Extension Agricultural Agents as compared to selected aspects of job satisfaction which included; compensation, supervision, personal environment, and cumulative job satisfaction.

The research hypotheses stated the following: 1) agricultural agents age has no relationship with perceived satisfaction with compensation; 2) agricultural agents extension experience has no relationship with perceived satisfaction with compensation; 3) agricultural agents age has no relationship with perceived satisfaction with professional supervision; 4) agricultural agents extension experience has no relationship with perceived satisfaction with professional supervision; 5) agricultural agents age has no relationship with perceived satisfaction with personal environment; 6) agricultural agents extension experience has no relationship with perceived satisfaction with personal environment; 7) agricultural agents extension experience has no relationship with cumulative job satisfaction.

Data were collected by written questionnaire from 80 agricultural agents employed by the University of Wisconsin Cooperative Extension Service during April and May, 1990. Data were analyzed using the F Ratio, one-way ANOVA and the Tukey-HSD Post-HOC Multiple Range Test. The independent variables (age and Extension experience) were not significant ($p>.05$) when compared with the dependent variables of; compensation, supervision, personal environment, and cumulative job satisfaction.

A Post-Hoc item analyses revealed a significant difference ($p<.05$) between agricultural agents extension experience when compared with the compensation attributes of present salary, and anticipated retirement benefits. A Post-Hoc item analyses also revealed that additional personal characteristics were found to be significantly different ($p<.05$). These include agricultural agents educational level when compared with satisfaction levels for; state program leader supervision, leisure opportunities and environmental quality. The personal characteristic of extension administrative district revealed a significant difference ($p<.05$) when compared with the satisfaction attributes of; district director supervision, feedback from district director, performance evaluation process, and vacation policy. It was recommended that extension administration should examine why substantial differences exist in the perceived satisfaction with supervision and with selected attributes of compensation.

Kutcha, J. A. (1990). An analysis of job satisfaction among selected Wisconsin Agricultural Education Instructors. Master of Science thesis, University of Wisconsin, River Falls.

The purpose of this study was to analyze personal characteristics including gender, age, total years teaching experience, marital status, coaching athletics in the past five years, and non-school membership in both church affiliated and non-church groups of selected Wisconsin agricultural instructors. Job satisfaction perceptions were identified through the use of Osgood's two-paired semantic differential job satisfaction scale.

Subjects for the study were selected from a list of Wisconsin high school agricultural education instructors, perceived to have successful overall agricultural education programs, through the use of a two phase adapted Delphi technique.

Phase one of the adapted Delphi technique involved a panel of experts including two Wisconsin Department of Public Instruction agricultural education supervisors and three professors of agricultural education selecting the instructor needed to be chosen by three out of the five experts.

Phase two involved the panel of experts rating the success of the overall agricultural education program of the selected group on a five-point Likert-type scale. Numerical values were assigned for the choices with X= Do Not Know, 1= Poor and 5= Very Good. The research group was determined from the selected group who met the set criteria of a mean score of 3.5 or better, insuring the qualitative agreement was reached by the panel of experts. The subject group included 61 agricultural instructors.

The following conclusions were reached:

1. The response rate of 98% was excellent compared with prior research in agricultural education.
2. The majority of respondents taught in a one person department, in school with an enrollment of 251-750 students and 61-120 agricultural students of which 41-60 percent were from farms, were married 31-50 years of age, had 15 years or less of teaching experience in agricultural education, held at least a master's degree, were males who did not coach athletics in the past five years were members of both church and non-church affiliated groups.
3. Agricultural education instructors who remain in the profession have a moderate to high level of overall job satisfaction.
4. Agricultural education instructors in successful programs may have a higher level of job satisfaction.
5. Agricultural education instructors with more years of teaching experience have a higher level of overall job satisfaction.
6. Male agricultural education instructors are more likely to have a high level of job satisfaction than females.
7. Age or marital status are not a good indicator of overall job satisfaction of agricultural education instructors.

8. Coaching athletics or membership in non-school organizations are not good indicators of agricultural instructors level of job satisfaction.

Sirianni, E. T. (1990). The frequency and effectiveness of on-farm instruction through the farm business and production management program. Master of Science thesis, University of Wisconsin, River Falls.

The purpose of this study was to compare selected personal characteristics of Farm Business and Production Management Students with their perceptions of the effectiveness in developing farm management competencies provided through the on-farm instruction method.

In this study the selected personal characteristics of Farm Business and Production Management students included age, farming status, years of farming experience, years of Farm Business and Production Management instruction, education level achieved, and gross farm receipts. These personal characteristics were compared to students perceptions of adapting new technologies, sources of useful information, teaching methods, decision making, the frequency of using competencies, and new technologies needed.

The target population consisted of the Farm Business and Production Management students in the 13 Vocational Technical and Adult Education Districts in Wisconsin. Data were collected from 196 students in the spring of 1990. Statistical analysis of the data included frequency, percentage, analysis of variance, homogeneity of variance, and a post hoc examination of homogeneity of variance.

The findings included the following: (1) the highest mean value for effectiveness of on-farm instruction was the area of adapting new technology; (2) the highest mean value of perceptions of frequency of on-farm instruction was in the area of developing competencies taught; and (3) there is a significant difference between the age of students enrolled in the Farm Business and Production Management Program and their perceptions of the effectiveness in adapting new technology taught on-farm.

Wilker, P. A. (1990). An assessment of international education perceptions by 4-H and FFA program participants. Master of Science thesis, University of Wisconsin, River Falls.

The primary purpose of this study was to assess selected personal characteristics and perceptions of 4-H and FFA International youth participants. The personal characteristics included gender, age, typed of international program, number of days abroad, country assigned, language training and skills. The perceptions included the participants' language ability, cultural experience and scope and method of reporting experience.

Data were collected through the mail by questionnaires given to past International 4-H Youth Exchange delegates, International Ambassadors, and FFA Work Experience Abroad delegates from Wisconsin, Minnesota, Colorado, and Montana. Delegates were chosen from the years 1980 through 1989 from selected countries who were involved in the three international youth exchange programs listed above.

Data were collected from 27 international youth exchange delegates. Statistical analyses of the data included frequency, percentage, means, T-test, and two tailed probability values.

The findings of this study were as follows: 1) A significant relationship was found to exist between foreign language training and language abilities prior to departure of the youth delegates. 2) There was no relationship between means of foreign language skills and values placed on level of cultural awareness prior to departure. 3) A significant relationship was found between type of international program and the value placed upon learning experience obtained prior to departure.

CITATIONS

Research and Development Activities in Progress

ARKANSAS

Johnson, L. D. Analysis of factors influencing the adoption of management practices for reproduction efficiency in northwest Arkansas. Master of Science thesis, University of Arkansas, Fayetteville.

Rainey, A. S. Analysis of the awareness of Arkansas youth of youth-at-risk with alcohol. Master of Science thesis, University of Arkansas, Fayetteville.

Roller, R. R. Assessing the need for agricultural literacy in Arkansas high schools. Master of Science thesis, University of Arkansas, Fayetteville.

FLORIDA

Marrich, A. A. Attitudes, knowledge, and practices of agricultural producers concerning water quality in the Lake Manatee Watershed. Master of Science thesis, University of Florida, Gainesville.

Rees, P. G. Perceptions of agricultural producers and extension agents regarding the adoption of biotechnology in agriculture. Master of Science thesis, University of Florida, Gainesville.

Thompson, J. C. Opportunities and status of blacks in the agricultural education profession. (Staff Study). University of Florida, Gainesville.

Thomson, G. O. A comparison of the perceptions of the mission of extension in Curacao held by clients and extension agents. Master of Science thesis, University of Florida, Gainesville.

Umphrey, G. R. Perceptions of agricultural producers and vocational agricultural teachers regarding the adoption of biotechnology in agriculture. Master of Science thesis, University of Florida, Gainesville.

GEORGIA

Fort Valley State College, Fort Valley

Borne, C. J. & Rawls, W. J. Standards for Quality agricultural education programs. (Staff Study). Fort Valley: Fort Valley State College.

Borne, C. J. & Rawls, W. J. Job satisfaction of Fort Valley College agricultural program graduates. (Staff Study). Fort Valley: Fort Valley State College.

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